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A CLINICAL STUDY OF CARCINOMA OF THE BREAST, AND ITS TREATMENT.

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In the following study, the life history and treatment of carcinoma of the female breast are based mainly upon an analysis of 1842 cases, which have been reported within the past ten years. Of these Oldekop[1] records 250 from Esmarch's clinic; Henry[2] records 192 from the Breslau clinic; v. Winiwarter[3] records 170 from Billroth's clinic; Hildebrand[4] records 152 from Koenig's clinic; Sprengel[5] records 131 from Volk mann's clinic; Fischer[6] records 63 from Rose's clinic; Kaeser[7] records 70 from the clinic of Socin; Kuester,[8] Heineke,[9] Banks,[10] Estlander,[11] Riedel,[12] and I[13] record, respectively, 132, 130, 82, 59, 39, and 207, and 165 occurred in the Middlesex Hospital.[14] The term carcinoma is used,

[1] Langenbeck's Archiv, Bd. xxiv., pp. 536 and 693.
[2] Statist. Mittheilungen über den Brustkrebs, Breslau, 1879.
[3] Beiträg zur Statistik der Carcinome, Stuttgart, 1878.
[4] Deutsche Zeitschrift für Chirurgie, Bd. xxv. p. 337.
[5] Langenbeck's Archiv, Bd. xxvii. p. 805.
[6] Deutsche Zeitschrift für Chirurgie, Bd. xiv. p. 169.
[7] Inaug. Disser. Lausanne, 1880.
[8] Verhand. der Deutschen Gesellschaft für Chirurgie, Bd. xii. p. 288.
[9] Beiträge zur Statistik der Mammatumoren, Erlangen, 1880.
[10] Table of Cases from the Author, and British Med. Journal, March 12, 1887, p. 572.
[11] Annales de Gynécologie, t. xiv. pp. 282 and 372, and t. xv. p. 45.
[12] Deutsche Zeitschrift für Chirurgie, Bd. xv. pp. 88 and 456.
[13] The Medical News, Nov. 26, 1887, p. 613.
[14] Middlesex Hospital Reports for 1885, p. 116

interchangeably with cancer, to express a tumor which consists of a cavernous fibrous stroma or framework, the communicating alveoli or spaces being occupied by solid nests, plugs, or cylinders composed of loosely heaped polymorphous epithelial cells, suspended in a serous fluid, without the intervention of a cementing intercellular substance. Hence, sarcoma, which I exhaustively discussed in this Journal for July, 1887, is excluded from the present paper.

Etiology.—Carcinoma of the mamma never develops before puberty; and I have not seen it before the twenty-fifth year, although Henry reports a case at twenty-one, which is, if I do not mistake, the earliest that has been observed. It is very rare before thirty, after which age it gradually increases to between forty-five and fifty, when it reaches its maximum of frequency, 48.66 years being the average, and then decreases; it is very uncommon after seventy. Of 1622 cases in which the age is noted, the youngest having been 21, and the oldest 84 years.

37	first appeared	between	20	and	29	years of age.
268	"	"	30	"	39	"
605	"	"	40	"	49	"
488	"	"	50	"	59	"
199	"	"	60	"	69	"
24	"	"	70	"	79	"
1	"	"	80	"	89	"

Of the entire number not one was observed during the developmental state of the mamma; 305, or 18.80 per cent., appeared during the period of its greatest activity, or up to the age of forty; and 1317, or 81.20 per cent., began after that age, or during its functional decline.

Of 451 cases in which the catameniæ are mentioned, 283, or 62.74 per cent., were menstruating at the date of the development of the disease; and only 8.45 per cent. of these were irregular in the performance of that function.

Of 1545 women in whom the social condition is noted, 1321, or 85.50 per cent., were, or had been married, and 224, or 14.50 per cent., were single. Of 1034 in whom it is mentioned, 907, or 87.72 per cent., had borne children, and of these nine-tenths were multiparous; while 127, or 12.28 per cent., were barren. With regard to nursing, I find that, of 416 patients in whom it is referred to, 316, or 76 per cent., had suckled their infants, while 100, or 24 per cent., had not. In nearly 5 per cent. of the fertile women the disease developed during pregnancy or lactation.

The influence of the general health of the patients upon the development of carcinoma is not so marked as some authors teach. Thus, of 627 subjects in whom the point is noted, 417, or 66.50 per cent., were in excellent health: 129, or 20.57 per cent., were in indifferent or mod-

erately good condition; and 81, or 12.92 per cent., were broken down from the effects of the disease. Hence, even when the patients first come under observation, only one-third appear to be injuriously influenced by the progress of the affection; and it may be asserted that the nutrition of scarcely one in twenty suffers previous to sixteen months after the detection of the growth.

Among the profession, as well as the laity, the idea prevails that carcinoma is frequently inherited; but this view is not sustained by a careful analysis of the cases in which this point is mentioned. Thus, a family history of cancer is recorded in 99, or 8.50 per cent., of 1164 cases. A history of cancer in the relatives of cancerous patients does not, however, carry with it a history of inheritance of the disease, so that sisters, brothers, cousins, uncles, aunts, and other connections, must be left out of consideration, and the inheritance be traced in the direct line of descent from parents, grandparents, and greatgrandparents. Looking at the subject from this standpoint, in only 55, or 4.72 per cent., of the 1164 cases, can the disease be said to have been transmitted. In many of these cases, moreover, the history is based upon the mere statement or belief of the patient, and not supported by the evidence of those who have actual knowledge of the family history. In addition to these facts, the 55 cases demonstrate that the tumor was seated in the breasts of the ancestors in only 27, and that in 10 cases the lips, hand, nose, and œsophagus were the seat of epithelioma. In 3 instances the cancer is noted as being "internal," and in 2 others the seat is not given.

From the preceding data, the conclusion is justified that the evidence of the inheritance of cancer is far from being satisfactory. Despite this conclusion, there can be no doubt of the hereditary transmission of the disease, not in the sense, however, of the inheritance of a particulate body, or virus, or germ, or of a blood disease, but of the inheritance of a peculiarity of the structure of the breast, especially of its epithelial elements, which predisposes it to the occurrence of cancer. Thin[1] believes that the vital qualities of the epithelium are feebly developed, through which it is rendered permanently weak and liable to take on the perverted action which gives rise to carcinoma more readily than in persons with normal epithelium. Be this as it may, and I regard the view as being most philosophical, it is certain that cancer is a disease of the obsolete or obsolescent breast. When the affection sets in before the climacteric, the breast is none the less beginning to be useless, in consequence of the changed proportions which exist between its component tissues, the connective tissue stroma predominating. It is this peculiarity of structure, along with the weakness of the secreting elements through

[1] British Medical Journal, 1883, vol. i. p. 555.

original fault of development, that is inherited, and the wonder is that the histories of inheritance are not more frequent and more conclusive. That hereditary transmission will in the future be found to be the most powerful factor in perpetuating the disease admits, in my mind, of no question; but it will require many years of careful watching of the children of carcinomatous ancestors before this point can be determined. In conducting these investigations, it must be remembered that a tumor of the breast of the descendant of a cancerous ancestor may be of an entirely different nature, since, for example, I find that in not less than five of seventy retention cysts there was an unmistakable history of carcinoma in the ancestors. For this reason the diagnosis should be based upon minute examination of the growths occurring in the children of cancerous parents.

Of the causes which favor the occurrence of cancer, antecedent attacks of deep-seated or superficial inflammation of the breast are regarded as being of great importance, and this is especially true of puerperal mastitis and abscess. Of the 907 parous women, 189, or 20.08 per cent., had suffered from puerperal mastitis; but before accepting this bare statement as a proof of a direct connection between the two diseases, there are several points which demand a careful scrutiny. In the first place, the tumor did not always appear on the same side as the inflammation; secondly, the changes produced in the breast by the inflammation are comparatively rarely described; thirdly, the carcinoma has not always been shown to have developed in the portion of the gland that had been inflamed; and, finally, the interval between the inflammation and the appearance of the cancer has usually extended over many years. Of 120 cases of mastitis or abscess in which the histories are clear, the tumor arose in the same breast in 104, and in the opposite breast in 16; but in only 49 could it be demonstrated that it developed out of lumps or circumscribed indurations left by the inflammation. In only 7 cases was the mastitis recent; in the remainder from four to thirty years had elapsed between the inflammation and the appearance of the tumor, the average having been more than fourteen years. These data, in connection with the fact that unmarried and sterile females are free from this cause, render the connection between puerperal mastitis and carcinoma doubtful, although it cannot be denied that mastitis does result in chronic indurations which are made up of dense cicatricial fibrous tissue enclosing glandular elements, thereby giving rise to a structure similar to that of a normal breast during senile involution. Hence, it is not astonishing that, under the influence of the period of life at which carcinoma usually appears, the epithelial elements should not react physiologically, but now and then grow atypically and lay the foundation of cancer.

Nonpuerperal abscess of the breast preceded the development of

carcinoma in 1 out of 44 cases from the practice of Rose, and in 5 out of my own 207 cases, in 4 of which the tumor appeared at the site of the abscess. It is also quite probable that deep lesions of the nipple, which continue to be irritated by the nursing child, may exert an influence; as they were present in 14 out of 373 cases in which this point is noted. Of the remaining precursory conditions of carcinoma, the so-called eczema of the nipple and areola, to which attention was first directed by Sir James Paget, has attracted considerable attention during the past thirteen years. Thin,[1] however, has conclusively shown that the disease is a malignant papillary dermatitis, secondary to carcinomatous degeneration of the epithelium of the mouths of the lactiferous ducts, which leads to destructive changes in the papillary layer of the skin of the nipple and areola, and finally extends along the ducts into the substance of the mammary gland. Hence, the so-called eczema is not a precancerous inflammatory condition, but indicates in reality the early stage of cancer occurring in an unusual situation. Cancer being already present, the morbid condition of the skin is, therefore, an effect and not a cause.

That injuries, such as contusions and blows, are efficient causes of carcinoma, by inciting an atypical growth of epithelium in the involuting breast, cannot be doubted. Thus, the affection was ascribed to trauma in 202, or 13.36 per cent., out of 1511 cases, but it should be mentioned that in only 55 is the evidence conclusive that the tumor developed out of indurations or other conditions following the injury, and that in only 9 did the carcinoma immediately follow the cancer. Just how often the repeated irritation occasioned by badly constructed corsets may prove a factor it is impossible to determine.

In reviewing the predisposing and exciting causes of the disease, it is evident that the age of the patient, which simply denotes atrophy or senility of the tissues of the breast, local irritation, and inheritance, which implies the transmission of peculiarity of structure, are the only factors of which we have any clear knowledge, so that, in the language of Jonathan Hutchinson,[2] it may be said that "senility gives proclivity, local irritation excites, and, subsequently, hereditary transmission may perpetuate" the affection. The social condition, as declared by Winckel,[3] cannot exert any influence upon the development of carcinoma, since the proportion of single women suffering from it, when compared with that of the married, is not much less than the general proportion of single women; while there cannot be any possible connection between childbearing and cancer, since, of women suffering from carcinoma, the proportion of sterile to parous women is about the same as in health.

Number of tumors. — Carcinoma usually commences as a small, circumscribed, densely hard, uneven, or nodulated solitary tuber or lump,

[1] Trans. Path. Soc. London, vol. xxii. p. 218.
[2] British Med. Journal, vol. i. 1883, p. 553.
[3] Lehrbuch der Frauenkrankheiten, p. 765.

which is movable under the skin, but fixed in or to the breast itself. In 3.06 per cent. of all cases, two or more nodules[1] are met with, and in still more exceptional instances, the disease occurs as an infiltration of the entire gland, especially when it arises during pregnancy or lactation. In 1.31 per cent. of all instances it begins in the lactiferous ducts of the nipple, as Paget's disease, or malignant papillary dermatitis.

Seat of tumors.—Of 1664 cases in which the breast affected is noted, the growth occupied the right in 793, and the left in 869, and both breasts simultaneously in 2, so that it is more frequent, by 4.54 per cent., in the left. The seats of election are the upper and outer portions of the gland, and the immediate vicinity of the nipple and areola. Thus, of 820 cases in which the locality is mentioned, the tumor occupied

The upper hemisphere in	90
The lower "	51
The outer "	83
The inner "	32
The upper and outer quadrant in	206
The " inner "	55
The lower and outer "	32
The " inner "	40
The vicinity of the nipple and areola in	231

In not less than 379, or 46.22 per cent., was the tumor seated in the upper and outer portions of the gland, while it occupied the region immediately beneath and around the areola and nipple in 231, or 28.17 per cent. In exceptional instances it develops in an aberrant or outlying lobule just below the clavicle, near the sternum, or in the axilla, so that when met with in the last locality, the tumor has been described as originating in an axillary lymphatic gland. These regions are shown in Figs. 1 and 2.

Rate of growth.—The increase of carcinoma, when compared with the other mammary neoplasms, is slow, so that it rarely attains any considerable bulk. In ordinary scirrhous and colloid cancer the tumor is usually smaller than the gland or portion of the gland that it has replaced; in that form of scirrhus in which the fibrous and epithelial constituents exist in about equal proportion the volume of a small fist is not uncommon, and it may even measure five inches and a half in diameter, as happened in one of my cases which had lasted three years before it was extirpated; in withering scirrhus, the tumor is rarely as

[1] It should be remembered that the presence of two or more nodules in the breast does not always indicate that the nodules are of the same nature. Thus, Kuester and Parker have recorded a fibroma and carcinoma, Richet and Paget two fibromata, I myself have met with three fibromata, and Waldeyer has seen eight fibromata coexisting with carcinoma.

large as a walnut, while in medullary carcinoma the size of a child's head is not uncommon. Hence, the volume depends upon the relative proportion of the component constituents, being large when the cells predominate, and small when the fibrous stroma is in excess.

Fig. 1.

1. Upper hemisphere. 2. Lower hemisphere. 3. Outer hemisphere. 4. Inner hemisphere.

The rate of growth is not, contrary to the generally received opinion, influenced by the early age of the patient, since I have failed to discover that the increase is more rapid before the age of forty than when the tumor develops later in life. When, however, carcinoma appears during pregnancy or during lactation, its growth is wonderfully rapid, and its course is excessively malignant, of which fact several striking instances are recorded by Klotz,[1] Paget,[2] and Henry.[3] In the case of a lady under my own care, a tumor of the volume of a small walnut was accidentally detected in the sternal portion of the left breast, in the sixth month of

[1] Ueber Mastitis Carcinomatosa Gravidarum et Lactantium. Inaug. Diss., Halle, 1869.
[2] Lectures on Surgical Pathology, 3d ed., p. 639. [3] Op. cit., p. 80.

her first pregnancy. In two weeks the entire breast was involved, and when I saw her, twelve weeks after the first observation of the disease, the breast was firmly fixed to the chest, the skin was adherent, thick, brawny, and pervaded by stuffed lymphatics, and the axillary, as well

FIG. 2.

1. Upper and outer quadrant. 2. Upper and inner quadrant. 3. Lower and outer quadrant. 4 Lower and inner quadrant. 5. Region of the nipple and areola

as the supraclavicular, glands were extensively invaded. In a remarkable instance reported by Billroth[1] the disease developed in both breasts, five weeks before the woman's eighth confinement; and on death, seven days after an easy and natural delivery, or six weeks after the first observation of the disease, the mammæ were larger than a child's head, and secondary deposits were found in the thyroid gland, pericardium, liver, omentum, and kidneys.

Early symptoms.—During its further increase—and it grows by progressively invading or infiltrating the tissues at its periphery—or when

[1] Chir. Klinik, Wien, 1871–76, p. 258.

it has attained only a moderate volume, carcinoma evinces signs which are of great diagnostic value even before the contiguous structures are visibly contaminated, and which are referable to its tendency to contract or draw the component tissues of the breast itself and the adjacent structures into its midst—a tendency due to cicatricial or atrophic changes going on in its older or more central portions.

Among the earliest of these phenomena, particularly when the tumor is superficial, is a dimpling or pitting of the skin. This pitting is entirely independent of carcinomatous adhesion between the skin and the growth, and arises from shortening of the fibrous bands or processes of the superficial mammary fascia which pass from the posterior surface of the skin into the interior of the breast, and which Sir Astley Cooper called the suspensory ligaments. This sign, along with the age of the patient and the consistence of the growth, has enabled me, in several instances, to diagnosticate the true nature of a tumor not larger than a small filbert.

In 5.22 per cent. of the noncarcinomatous neoplasms of the breast the nipple is buried, displaced, or sunken, simply for the reason that the tumor grows beyond its level, so that by pushing back the former the nipple, as a rule, again partly protrudes. In carcinoma, on the other hand, the mammilla is permanently retracted and fixed, because the contracting growth draws it toward itself by shortening the milk ducts which terminate at its extremity; and this process is the more apparent when the neoplasm develops in the immediate vicinity of the lacteal sinuses, or when the nipple itself is infiltrated and becomes the seat of cicatricial contraction. In my own 207 cases—and writers, strange to say, rarely refer to this point—a retracted nipple was observed in not less than 108, or 52.17 per cent., the large proportion being due to the fact that in 75 the carcinoma was seated in the immediate vicinity of the mammilla and areola. As the nipple is sunken in only 5.22 per cent. of the noncarcinomatous neoplasms, I regard it as a sign the value of which cannot be overestimated. In one of my patients it was the first feature, along with a straw-colored discharge, that directed attention to the disease.

In 15 of my 207 cases there was a spontaneous discharge from the nipple, the fluid being, as a rule, either watery or bloody, or thick and lactescent, while in two additional cases a thick, milky fluid, the so-called cancer-juice, could be expressed. In one-third of the cases the discharge preceded the detection of the tumor.

To the same cause, or intraction of, combined with pressure upon, the nervous filaments which supply the breast, may be ascribed the pain of which patients so commonly and so early complain. Usually of an intermittent, darting, pricking, or neuralgic character at the outset, the suffering becomes more constant and aggravated with the progress of the disease, and particularly when the skin is extensively invaded and ulcer-

ated, the lymphatic glands infiltrated, and the arm swollen, until, finally, it is frequently atrocious; extending in various directions, as, for example, to the shoulder, neck, back, and arm, interfering with sleep and nutrition, and hastening the fatal issue. In 4 per cent. of all cases there is absolutely no suffering whatever; in 8 per cent. there is merely a sensation of discomfort or weight; while in 88 per cent. there is real pain, which varies, however, greatly in intensity and character.

Local extension.—With the further advance of the disease, but not, on an average, before the expiration of thirteen months after its first observation, marked changes ensue. These indicate, first, local infection, or regional dissemination, through the extension or growth of young epithelial cells, along the course of the lymphatics and perivascular lymph-sheaths, into the adjacent tissues; and, secondly, the transfer of the cells by the lymphatic vessels to the associated lymphatic glands. These changes, when regarded in their chronological order, are invasion of the skin, the glands, the muscles of the chest, the ribs, the pleura, the anterior mediastinum, and the opposite breast.

Infection of the contiguous tissues shows itself either in the form of adhesion or fixation of the tumor to the skin and walls of the chest, or as distinct nodules or tubers which are visible to the naked eye when superficial, or are detected during operative procedures.

Of the 1414 cases in which this point is noted, invasion of the skin, as evinced by its adhesion or discoloration, was met with in 599, or 42.36 per cent.; by the formation of tubers in 152, or 10.44 per cent.; and by ulceration in 338, or 23.90 per cent., so that, omitting the cases in which two or more of these features are present, it is involved in 62.26 per cent. of all instances. In the majority of cases, the skin is adherent, thinned, and of a purplish, bluish-red, or dusky-red tint, with enlargement of its small vessels, and the seat, possibly, of superficial and limited desquamation, conditions which precede ulceration. In some examples it is thick, rigid, and brawny, like the skin of a lemon or the rind of bacon, and, now and then, œdematous, and pervaded by varicose lymphatics, which may be plugged with epithelial cells, or merely obstructed by lymph cells, or it may be drawn in so as to resemble a cicatrix. When nodules form, they may present the appearance of flat, irregular plates; but they are usually shot-like or pea-like or biconvex, and frequently attain the size of a hazel-nut or a small hickory-nut, and are covered by discolored skin. Occasionally, and particularly when the subcutaneous connective tissue is simultaneously involved, they form large masses, which extend beyond the middle line of the chest, involve the opposite breast, ulcerate, produce great suffering, and finally convert the front and sides of the thorax into a mass of offensive disease. Under these circumstances, the tubers need only undergo atrophic changes to constitute the affection known as cancer en cuirasse, which is met with once in every twenty-two cases.

When withering does not ensue, the affection is termed lenticular cancer by Schuh, and pustular or disseminated scirrhus by Velpeau, and the disease may extend to the neck, shoulder, arm, abdomen, and back. In other cases, by the union of the nodules with the main tumor, and by their progressive growth, the breast is converted into a large bossed mass.

Invasion of the skin is the earliest perceptible sign of local malignity, but it may be delayed for seven or eight years. I have met with it as early as two weeks; but the average date of its appearance is 15.8 months, which is the mean of 13.9, 14.4, 15.8, 13.6, 25.1, and 12 months recorded, respectively, by Winiwarter, Oldekop, Sprengel, Hildebrand, Heineke, and myself. According to the observations of Heineke, Sprengel, and myself, the skin becomes adherent 1.5 months before the formation of nodules or tubers.

Although I have included ulceration among the phenomena of infection of the integument, many ulcers result from fatty and disintegrating changes which take place in the substance of the tumor itself. Hence the process may be superficially or deeply seated. In the former event the thinned and discolored skin is at first cracked, fissured, excoriated, or eroded, and covered by thin crusts. Ere long a sore forms, which has a pale granulating base, and discharges a thin, offensive fluid. Now and then it heals over, the cicatrix being thin, tense, red, and traversed by small vessels; or healing occurs in the first breach of continuity, while the ulceration continues to spread. In the second form of sore, or that which ensues from the breaking down of the tumor, there is a deep, excavated, or crater-like cavity, with irregular, discolored, full, indurated, and everted edges, and a base which is usually formed of hard granulations, and which discharges a puriform, bloody, foul, or ichorous fluid.

The ulcer of carcinoma differs from that of the other mammary neoplasms. In myxoma and sarcoma especially, the sore may be deep and excavated, and its walls composed of disintegrating tumor tissue; but the ulcer of the simple growths is essentially a fungating one—that is to say, it is attended with the protrusion of pedunculated masses, which are not attached to the sides of the ulcer. The edges of the ulcer are, moreover, smooth, even, and free from discoloration and infiltration. Although carcinoma is said to throw out fungous masses, I fancy that the statement is mainly traditional.

I have witnessed ulceration as early as two months, but it usually declares itself, on an average, in 19.9 months. Winiwarter fixes the mean date of its appearance at 17.7 months, Oldekop at 26.4 months, Sprengel at 20.3 months, Heineke at 19.3 months, while my cases averaged 15.8 months.

Of the signs of local infection the next in order of frequency is inva-

sion of the deep tissues, as indicated by infiltration of the pectoral fascia, or the formation of distinct nodules in the pectoral and intercostal muscles and ribs, which corresponds to the fixation or adhesion of the tumor to those structures. Of 1020 cases in which this point is noted, the mamma was mobile in 860, and more or less closely adherent in 160, or 15.69 per cent. In the latter class of cases, distinct tubers were also found, on operation, in 1 case out of every 9.3 in the pectoral muscles, in 1 out of every 73.6 in the intercostal muscles, and in 1 out of every 37 in the ribs. In 1 case out of every 12.3, nodules were present in the paramammary fat.

Immobility of the tumor on the subjacent tissues is witnessed, on an average, in 21.9 months, which is the mean of 22.7, 23.4, 24.8, and 16 9 months recorded, respectively, by Winiwarter, Oldekop, Heineke, and myself. Hence, it will be observed that fixation of the growth ensues 6.1 months after adhesion to the skin, and 2 months after ulceration. I have myself met with it as early as the second and as late as the twenty-seventh month. It, moreover, usually coexists with infection of the lymphatic glands, the presence of which may be suspected, if they cannot be felt, whenever fixation of the tumor declares itself.

Among the more uncommon evidences of local dissemination is the invasion of the opposite breast, which is noted in 48, or 2.85 per cent., of 1681 cases. Although I have included this as one of the symptoms of local extension of the disease, it is highly probable that, in the majority of the cases, the disease was independent of the tumor of the first breast affected. Be this as it may, implication of the other breast is a late sign, appearing, on an average, at 29.8 months, although it is witnessed as early as four months, and as late as six years. Of 28 cases of which I have the full particulars, in 24 it was preceded by enlargement of the glands; and in 13 of these there were also nodules in the skin, and ulceration was present in the original tumor in 7. In 2 cases there was no glandular involvement, but in both the disease was preceded by cutaneous tubers and by ulceration of the primary growth. In 2 there were no complications.

From the preceding facts we learn that carcinoma evinces a remarkable disposition to infect the adjacent tissues, and that it progresses at first toward the surface. The skin is invaded in 66.26 per cent.; deep attachments ensue in 15.69 per cent.; and the opposite breast suffers in 2.85 per cent. of all instances. The occurrence of local dissemination is, moreover, indicated by the formation of circumscribed nodules in the skin in 10.44 per cent., in the paramammary connective tissue in 8.13 per cent., in both of these situations, as in the cuirass form of cancer, in 4.57 per cent., in the pectoral muscles in 10.77 per cent., in the intercostal muscles in 1.35 per cent., and, finally, in the ribs in

2.7 per cent. In the order of the date of their appearance we may look for extension to the superficial fascia and skin in 15.8 months, for ulceration in 19.9 months, for fixation to the chest in 21.9 months, and for invasion of the second breast in 29.8 months. These facts, elicited by clinical and post-mortem evidence, have an important bearing upon the question of glandular infection and the formation of secondary growths in the internal organs. Thus, of the 192 cases of local dissemination, recorded by v. Török and Wittelshöfer, invasion of the glands was met with in 52.6 per cent., and metastases were discovered in 72.9 per cent. Of the 174 cases, on the other hand, which were free from local infection the glands were affected in 42.5 per cent., and metastases had occurred in 45.4 per cent. Hence, it appears that the occurrence of glandular and systemic infection is greatly favored by local dissemination. All of these data must be considered in deciding the question of operation, to which reference will again be made under the head of treatment.

Invasion of the lymphatic glands.—The reproduction of carcinoma in the associated lymphatic glands is one of the most practically interesting of its malignant features, and exerts a decided influence upon the course of the disease, upon the formation of metastatic deposits, and upon the final issue after operative procedures. As the loose collections of cells are contained in the lymph spaces of the mammary gland, which are the radicles of the lymphatic vessels, one can readily conceive how easily, and, indeed, how inevitably, the young epithelial elements are transported to the lymphatic glands in the axilla and above and below the clavicle, where they implant themselves, proliferate, and reproduce the likeness of the parent growth. When the glands are affected, they delay[1] for a certain period, on the one hand, metastatic deposits, and, on the other hand, constitute new foci of local and general infection. Hence the cells of a packet of indurated and enlarged glands behave precisely like the primary tumor; that is to say, they invade the surrounding tissues and infect the adjoining glands and the viscera. Just how often the glands enlarge as a result of inflammatory or irritative hyperplasia, as is witnessed in other mammary neoplasms, I am unable to say; but it is very certain that they are not always carcinomatous,

[1] These points are still further illustrated by v. Török and Wittelshöfer from the records of 366 post-mortem examinations of women dead of carcinoma of the breast, an account of which may be found in Langenbeck's Archiv, Bd. xxv. p. 873. In 184 an operation had been performed, while 182 ran a natural course. Of the entire number 192 were marked by local dissemination or regional infection. The skin was invaded in 148, or 40.43 per cent., in 38, or 10.38 per cent. of which nodules were present, and in 110, or 74.32 per cent. of which ulceration had taken place. The chest muscles were infected in 80, or 21.86 per cent, tubers were found in the pectoral in 58, or 15.84 per cent., and in the intercostals in 22, or 6.01 per cent. The bony walls of the chest were affected in 52, or 14.20 per cent., the ribs being involved in 29, or 7.92 per cent., the sternum in 20, or 5.46 per cent., and the clavicle in 3, or 0.82 per cent. The pleura was involved in 25, or 6.08 per cent., the pericardium in 2, or 0.54 per cent, the mediastinal glands in 24, or 6.55 per cent., and the opposite breast in 33, or 9 per cent.

since, as I shall show hereafter, several cases are on record in which, having been left behind during operations, they have subsided, and the patients were living several years—in one case, indeed, ten years afterward—free from disease.

Out of 1638 cases in which it is mentioned, glandular infection was witnessed in 1115, or 68.07 per cent., when the patient first came under observation. In all of these cases the axillary glands were affected, and along with these the supraclavicular glands were involved in 5.44 per cent., the subclavicular in 1.34 per cent., and the cervical in $\frac{6}{10}$ of 1 per cent.

Of the 366 post-mortem examinations recorded by von Török and Wittelshöfer,[1] the axillary glands were infected in 175, or 48.08 per cent., the supraclavicular in 4.1 per cent., and the cervical in 4.1 per cent. The smaller proportion is, doubtless, due to the fact that one-half of the cases had been subjected to operation.

Carcinomatous degeneration may occur in a few weeks, or may be delayed for seven years. In 136 examples I myself have witnessed it as early as two weeks, and as late as five years, the latter being an instance of atrophying scirrhus. About 1 case in every $4\frac{1}{3}$ is met with in the first six months; but the average date of its appearance is 14.7 months, which is the mean of 14.7, 16.5, 9.7, 14.3, 20.6, and 12.8 recorded, respectively, by Winiwarter, Oldekop, Heineke, Sprengel, Fischer, and myself. Hence, it antedates invasion of the skin by one month, ulceration by five months, deep adhesions by seven months, and extension to the opposite breast by fifteen months. In exceptional instances it is even observed before the primary tumor is noticed.

A point of interest, and it is one which must have attracted the attention of every surgeon, is, that the seat of the carcinoma exerts no influence upon the frequency, or the date of the appearance, of the lymphatic tumor. In other words, the glands are not involved earlier or oftener when the original growth is near the axilla, or when it occupies the inner periphery of the mamma.

While it is an established fact that the cases uninfluenced by operation, in which the gland contamination does not evince itself until late, pursue a more chronic course, and do not perish nearly so quickly as those in which the glands are infiltrated early in the affection, statistics show conclusively not only that the chances of removing the entire disease are greatly lessened when the glands are enlarged, but that, as in the former instance, the patients succumb much sooner, and that recurrence is far more rapid. Thus, of 136 subjected to operation, 43 were free from glandular tumors, and their average life from the first observa-

[1] Von Török and Wittelshöfer, op. cit., p. 880, show that in 20 per cent. of all examples of invasion of the glands, metastatic tumors are absent.

tion of the disease to the fatal issue was 52.7 months. Among these patients local reproduction ensued, on an average, in 8 months. Of 93 in whom both the breast and the glands were removed, the mean life was 39.3 months, and the average time of recurrence was 1.9 months. Hence, the former lived 13.4 months longer than the latter, and when there was recurrence it appeared 6.1 months later.

The number of glands involved is sometimes enormous, being greater even than the study of normal anatomy leads one to conceive. Thus, from a woman forty-eight years of age, in whom the disease had existed eighteen months, fifty glands, which varied in size from a small shot to a hazel-nut, were removed. On her return to the clinic, ten weeks subsequently, the disease was found to have recurred at the edge of the pectoral muscle, in the axilla, and in the supraclavicular glands.

In the majority of instances the glands are separate and distinct. In others they constitute a densely hard, conglomerate, knobby mass; while, now and then, the disease is confined to a single gland, which may, as in a case of my own, measure three inches and a quarter by one inch and three-quarters in its long and short diameters.

Metastatic deposits.—After invasion of the lymphatic glands the cells pass into the circulatory system, are transported to the viscera, the bones, and other tissues, in which they proliferate, reproduce the likeness of the primary growth, and in this way develop metastatic deposits or growths. General dissemination may, however, manifest itself without antecedent glandular infection, but such a course is exceptional. Thus, of 61 post-mortem inspections in which systemic secondary tumors were discovered, the intervening glands were involved in 52, or 85.24 per cent.; in 2, or 3.27 per cent., there were merely tubers in the skin and pectoral muscle; while in 7, or 11.47 per cent., there were no primary complications whatever. Hence, in about 1 case in every 7, metastasis occurs without implication of the glands; from which it appears that infection may take place through the bloodvessels, and that the absence of enlarged glands affords no absolute guarantee that the viscera are not already invaded. The presence of metastatic tumors without antecedent glandular infection is also demonstrated by the investigations of von Török and Wittelshöfer. Thus, of 175 cases complicated by infected axillary glands, secondary growths were found in 57.7 per cent., while of 191 cases without glandular involvement metastases had occurred in 62.3 per cent.

Of the frequency of metastatic deposits our knowledge is not satisfactory, for the reason that it is by no means easy to follow our cases or to obtain post-mortem examinations. My own observations in this respect are worthless, as I was enabled to make a section in only one case, it being one of atrophying scirrhus which had lasted for upward of seventeen years, and in which I detected tumors in the lungs, the

pleura, the bronchial and mediastinal glands, and the right kidney. The tables of Winiwarter, Oldekop, Henry, Kaeser, Kuester, Sprengel, Riedel, Estlander, Fischer, and Hildebrand, however, contain 134 cases of general dissemination confirmed by section after death, and 70 cases in which that condition was determined by well-marked symptoms during life. They were distributed as follows:

Died without operation	74	Metastases in	11	Presumed metastases in	6
Died from the effects of operation	168	"	15	"	"	0
Died with recurrence after operation . .	435	"	72	"	"	49
Died with metastases, but without recurrence after operation	36		36			
Died with presumed metastases, but no recurrence after operation	15					15
	728		134			70

Hence, of 728 patients, metastatic deposits had formed, or were presumed to have formed in 204, or 28.02 per cent. As indicated by section, they were present in 51 per cent. This latter point is interesting, as it denotes that death ensues in one-half of all cases merely from the baneful effects exerted upon the nutrition of the patient without cancerous degeneration of the viscera, or from intercurrent diseases, of which the most common are pleuritis, tubercle, and pneumonia.

The date at which metastases form varies from five months to eight years. Out of every 100 cases 24 will be found within a year; 3 in from thirteen to eighteen months; 18 in from nineteen to twenty-four months; 27 in from twenty-five to thirty-six months; and 28 after three years. Winiwarter, Henry, Oldekop, and Sprengel, compute the average date of death from metastases from the first appearance of the disease, respectively, at 23.7, 31.7, 38.2, and 24 months, so that the general mean is 29.4 months, or 14.7 months after glandular infection.

In the 114 cases in which sections were made after death, the relative frequency of the seats of the secondary deposits is shown by the following statement:

Dura mater in	3 cases.	Ovary	in 3 cases.
Pleura "	17 "	Uterus	" 1 case.
Pericardium "	2 "	Bladder	" 1 "
Brain "	3 "	Peritoneum	" 1 "
Lung "	41 "	Omentum	" 1 "

Œsophagus	in	1 case.	Bones	in	18 cases.
Stomach	"	11 cases.	Muscles	"	2 "
Intestine	"	2 "	Bronchial glands	"	3 "
Liver	"	42 "	Mediastinal glands	"	4 "
Spleen	"	5 "	Retroperitoneal glands	"	5 "
Kidney	"	5 "	Mesenteric glands	"	2 "
Adrenal	"	1 case.			

With a view to determine the relative frequency of the locality of the metastatic growths from a larger number of cases, I have obtained the following results by adding to the 114 cases 89 compiled by Arnold, Morris, and Clark from the registers of the Middlesex Hospital, and 220 recorded by v. Török and Wittelshöfer. Thus, of 423 post-mortem inspections, secondary tumors were discovered in the

			Per cent.				Per cent.
Dura mater	in	25 or	5.9	Stomach	in	20 or	4.7
Brain	"	40 "	9.4	Intestines	"	8 "	1.8
Spinal cord	"	1 "	0.2	Pancreas	"	7 "	1.6
Pericardium	"	19 "	4.4	Omentum	"	6 "	1.2
Heart	"	4 "	0.9	Œsophagus	"	1 "	0.2
Venous system	"	4 "	0.9	Kidney	"	24 "	5.7
Bronchial glands	"	15 "	3.5	Adrenal	"	8 "	1.8
Mediastinal glands	"	4 "	0.9	Bladder	"	3 "	0.7
Retroperitoneal glands	"	23 "	5.4	Ureter	"	1 "	0.2
Mesenteric glands	"	14 "	3.3	Mamma	"	33 "	7.8
Lung and pleura	"	38 "	8.9	Ovary	"	34 "	8.
Pleura	"	178 "	42.0	Uterus	"	22 "	5.2
Lung	"	175 "	41.0	Tubes	"	4 "	0.9
Thyroid gland	"	8 "	1.8	Vagina	"	2 "	0.4
Liver	"	206 "	48.6	Bones	"	87 "	20.5
Peritoneum	"	20 "	4.7	Muscles	"	3 "	0.7
Spleen	"	20 "	4.7				

It will thus be seen that the digestive, respiratory, osseous, and nervous systems are the seats of predilection, and that the lungs suffer rather more frequently than the liver.

In connection with the occurrence of secondary deposits attention may be called to what Herbet Snow[1] calls "a neglected symptom in breast cancer," that is to say, a thickening of the upper end of the humerus, with tenderness on pressure, which he declares sets in, in the majority of cases, simultaneously with enlargement of the axillary glands, and which he ascribes to carcinomatous invasion of the medulla. I have faithfully tested this symptom, and met with it only once in 107 cases. V. Török and Wittelshöfer[2] show that of 336 post-mortem examinations of women dead of mammary carcinoma, secondary deposits were

[1] Lancet, 1880, vol. i. p. 912.

[2] Loc. cit., p. 883.

found in 220, and of these the humerus was implicated in only 5, in 2 of which it had undergone fracture. Hence, neither clinical nor post-mortem evidence indicates that the observations of Snow are correct.

Cancerous cachexia.—With the progress of the local and general disease the so-called "cancerous cachexia" is established. This is nothing more than the general failing of the powers, such as is witnessed in many other maladies, attended with loss of blood, offensive and exhausting discharge, and suffering, and is due to the improper performance of the functions of the viscera, and the consequent ill effects produced upon the general nutrition, as indicated by wasting, loss of appetite and strength, nausea, sallowness, and a quick and feeble pulse. As we have just seen, death occurs, as demonstrated by post-mortem inspection, in an equal number of cases, whether there be visceral deposits or not. The latter succumb from the intensity of the local disease and its effects; the former from the effects of metastases, as indicated by symptoms which denote implication principally of the lungs, pleura, liver, digestive organs, and nervous system.

(To be concluded.)

AORTIC REGURGITATION WITH PRESYSTOLIC THRILL AND MURMUR IN THE MITRAL AREA, AND WITHOUT MITRAL CONSTRICTION.

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All observers, whether they believe that the presystolic murmur is auricular-systolic, or ventricular-systolic in its method of production, seem to be at one in thinking that it is a certain indication of stenosis or narrowing of the mitral orifice. The late Dr. Austin Flint was, so far as I am aware, the only authority of note who differed from this view. He, as all physicians who are interested in things cardiac know, was of opinion that in some cases of aortic regurgitation in which the mitral valve is absolutely healthy, a presystolic murmur, having all the sound characters of the characteristic murmur of mitral stenosis, is generated at the mitral orifice. In one of the last, if not *the* last paper which was published before his lamented death, he reiterates the grounds for this belief and adheres to the opinion which he had previously expressed in the most positive manner.

"The author," he says, "of a late work on diseases of the heart,

states that a constriction of the auriculo-ventricular opening is always present when a presystolic murmur exists. This statement expresses the prevailing opinion at the present time. That this opinion is erroneous, the writer of this article not only believes, *but knows* (no italics in the original). This strong statement is made for the reason that his knowledge is based on recorded clinical observations during life, and post-mortem examinations in cases in which the murmur existed and the mitral valve was sound."[1]

He then details three cases (one observed in May, 1860, one in February, 1861, and one in the autumn of 1882), on which the theory is founded; and states: "On the basis of these three cases, to assert positive knowledge of the fact that a mitral presystolic murmur may be produced without mitral lesion, does not appear to the writer to imply undue assurance."

Such a definite statement, coming from an authority of such eminence, and of such enormous clinical experience as the late Dr. Austin Flint, and from one who is, I suppose, universally acknowledged to have been eminently careful, cautious, and truthful in all his observations, must necessarily carry great weight, however much it may appear to be opposed to current medical opinion and belief.

Since becoming acquainted with Dr. Flint's views, I have been diligently looking for some corroborations of them; and as the case recorded below seems to me to lend some support to Flint's theory, I take this opportunity of placing it on record. It must, however, be observed that in the absence of post-mortem verification, purely clinical facts cannot be considered conclusive, and that while my mind is open to conviction, and while I shall continue to look for fresh facts, I do not as yet see sufficient grounds for abandoning my previous position—that is to say, for giving up the generally accepted view as to the value of a presystolic mitral murmur as a sign of organic disease (stenosis).

Before detailing the facts of the case, it may, perhaps, be well to give Flint's explanation of the manner in which the murmur is produced. He says:

"The difficulty of explaining why, as a rare occurrence, a mitral presystolic murmur without mitral lesion accompanies incompetence of the aortic valve, does not do away with the clinical fact. The writer has submitted an explanation which he will here introduce. He admits, however, fully the force of the objection which has been raised to the explanation by Hayden and Bramwell, to wit, that accepting the explanation, it would be expected, *à priori*, that the murmur should not rarely, but frequently accompany aortic regurgitation, and should occur even without any lesion of the aortic valve. The explanation which he has given, quoting his own words, is as follows: 'The explanation involves a point connected with the physiological action of the auricular valves. Experiments show that where the ventricles are filled with a liquid, the valvular curtains are floated away from the ventricular

[1] The International Journal of the Medical Sciences, New Series, vol. xci. p. 35.

walls, and, approximating to each other, they tend to close the auricular orifice. In fact, as first shown by Baumgarten and Hamernik, a forcible injection of liquid into the left ventricle through the auricular opening, will cause a complete closure of this opening by coaptation of the mitral curtains, so that these authors contend that the mitral (? initial) closure of the auricular orifices is effected, not by the contraction of the ventricles, but by the forcible current of blood propelled into the ventricles by the auricles. However this may be, that the mitral curtains are floated out and brought into apposition to each other by simply filling the ventricular cavity with liquid, is a fact sufficiently established and easily verified. Now, in cases of considerable aortic insufficiency, the left ventricle is rapidly filled with blood flowing back from the aorta, as well as downward from the auricle, before the auricular contraction takes place. The distention of the ventricle is such that the mitral curtains are brought into coaptation, and when the auricular contraction takes place the mitral direct current passing between the curtains thus in contact with each other throws them into vibration, and gives rise to the characteristic blubbering murmur.'"[1]

The notes of the case are as follows:

J. H., æt. forty-two, a laborer, came under my notice as an out-patient at the Edinburgh Royal Infirmary on the 28th of October, 1886, complaining of severe paroxysmal pain in the region of the heart, cough, and shortness of breath.

Previous history.—The patient stated that he was perfectly well until two months ago, when he got cold, suffered from bronchitis, and his present complaints commenced. All his life he has had to do very heavy, laborious work, involving much muscular effort and strain. He worked all through the past winter (1885–86) without feeling any shortness of breath or præcordial distress, and during that period he was not off work for a single day. In answer to a leading question he stated that during the past year he has occasionally felt giddy. Thirteen years ago he had a severe attack of rheumatic fever; he does not know whether the heart was affected at that time, he has never had any reason to suppose that there was anything wrong with it. There is no history of syphilis, and there were no rheumatic manifestations when the present symptoms commenced.

Present condition.—The patient, who is a spare, but muscular man, is very pale in the face. Marked jerking, collapsing pulsation is visible in all the superficial vessels, capillary pulsation can be produced on scratching the forehead, but the blush, which is thus elicited, is of very temporary duration. The feet and legs are not and have never been swollen. The præcordial pain is very severe; it comes on several times a day, and is excited by the least bodily exertion or mental excitement, sudden exposure to cold, going, for example, from a warm into a cold atmosphere, also produces it. The pain is confined to the region of the heart, it does not shoot up to the shoulder or down the arm. The shortness of breath is very distressing, and is produced by the slightest exertion. When the patient is at rest the breathing, though somewhat quicker than normal, is quiet. It is only when he exerts himself that he feels the breathing short.

On physical examination the heart is found to be much enlarged; the apex beat is situated in the sixth interspace, two inches beyond (outside) and two and a half inches below the left nipple, at a distance of five

[1] Ibid., p. 37.

and three-fourths inches from the left border of the sternum. A very distinct presystolic thrill can be felt in the fifth interspace, at a spot one inch outside the left nipple. Pulsation in the suprasternal notch is very distinct, and the percussion note over the manubrium sterni and ascending thoracic aorta is distinctly impaired.

On auscultation, a well-marked double (systolic and diastolic) murmur is heard over the course of the aorta, and up and down the sternum. The same murmur is also audible in the vessels of the neck, the systolic portion being here more distinct than the diastolic. The heart's action is quick; and the duration of the diastolic portion of the aortic murmur is brief in consequence of the shortness of the ventricular diastole—*i. e.*, the rapid manner in which the left ventricle is filled and in which succeeding systoles follow one another. At the apex a systolic murmur propagated upward and outward toward the axilla, and a diastolic or rather presystolic murmur is audible; the systolic murmur can be heard at the inferior angle of the scapula.

FIG. 1.

FIG. 2.

Sphygmograms of the right and left radial pulses in the case of J. H.
(Free aortic and mitral regurgitation with presystolic mitral thrill and murmur.)

FIG. 3.

Cardiographic tracing from the apex beat in the case of J. H.
(Free aortic and mitral regurgitation with presystolic mitral thrill and murmur.)

Over the position of the presystolic thrill (fifth left interspace, four and a half inches from the left border of the sternum), the presystolic murmur is more definite and distinct than over the apex beat itself (sixth left interspace five and a half inches from the left border of the sternum). Although this presystolic murmur resembles in its sound characters the presystolic murmur of mitral stenosis, it is difficult, or impossible, by means of auscultation alone to satisfy one's self whether it is a separate and distinct mitral murmur, or whether it is not the diastolic aortic murmur heard as a presystolic murmur in this position

(fifth left interspace, four and a half inches from the left border of the sternum). The thrill is, however, so characteristic and so distinctly presystolic that the weight of evidence seems strongly in favor of an independent (presystolic) mitral murmur.

The pulmonary second sound is loudly accentuated. Some bronchitic râles are audible over both lungs. The other systems and organs are normal and there is no fever.

The pulse presents the usual characters of free aortic regurgitation, and the sphygmographic tracing is typical of that condition. (See Figs. 1 and 2.) The cardiographic tracing (see Fig. 3) is characteristic of hypertrophy and dilatation with rapid filling of the left ventricle during its diastole; in short, the characters of the cardiographic trace are suggestive of aortic or mitral regurgitation, but afford no indication whatever of mitral stenosis.

The tracings are suggestive of free aortic regurgitation. The heart's action is rapid; the tidal wave *c* is well marked, the aortic wave *d* and aortic notch are situated very low down in the tracing; the duration of the diastolic portion of the tracing is very short, and the artery is very empty during diastole.

The cardiographic tracing (Fig. 3) shows: (1) quick action of the heart; (2) a rapid and well-marked elevation of the upstroke of the lever (*a* to *b*) indicative of sudden and powerful contraction of the left ventricle; (3) a broad, flat top to the systolic elevation of the trace (*b* to *e*) indicative of well-sustained contraction (hypertrophy) of the left ventricle; (4) a very sudden fall of the lever (*e* to *f*) which in some cycles, as at *f*, is so marked as to suggest inversion of the trace; (5) rapid elevation of the lever after the sudden diastolic fall, with, in many instances, the production of a very large wave (*g*), in the diastolic portion of the tracing.

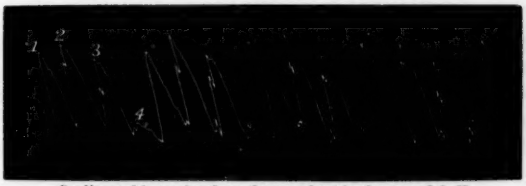
The duration of the diastolic portion of the tracing is diminished rather than increased.

These characters show rapid filling of the left ventricle during its diastole. The large wave *g*, which is seen in some of the cycles, is, I believe, suggestive that this rapid filling of the left ventricle was not merely due to free aortic regurgitation; but that it was at all events partly caused by a powerful blood current being propelled from the over-distended left auricle *through a normal or dilated, and certainly not contracted*, mitral orifice. My observations in other cases would lead me to conclude that this large diastolic wave *g* is not due to free aortic regurgitation alone. In free aortic regurgitation it is not uncommon to find the lever rapidly rising from the point *f* to *g*; and then, after a slight break, continuing its rise, as it were, into another systole. But unless mitral regurgitation is superadded to the aortic regurgitation I have never seen the diastolic wave *g* so marked as it is in this tracing.

In a subsequent paper I propose to publish a series of cardiographic

and sphygmographic tracings of, (1) cases of free aortic regurgitation without any mitral lesion; (2) a case of aortic regurgitation with mitral regurgitation; and (3) a case of aortic regurgitation with mitral stenosis, with the object of more clearly demonstrating some of the points just referred to.

FIG. 4.



Cardiographic tracing from the apex beat in the case of J. H.
(Free aortic and mitral regurgitation with presystolic mitral thrill and murmur), showing a remarkable rhythmically recurring irregularity.

I append another cardiographic tracing in the case of J. H. (see Fig. 4) taken at a subsequent period to that shown in Fig. 3; and when the ventricular contractions were less sustained and regular. This tracing shows a most remarkable irregularity; the cardiac pulsations are, it will be seen, divided into series of four beats; the tracing of each separate beat (say 1) in any one series is quite different from the tracings of succeeding beats in the same series (say 2, 3, and 4); but the tracings of corresponding beats (1, 2, 3, and 4) in the different series presents a remarkable similarity. I do not know that this rythmically recurring irregularity, as it may be termed, is of any practical significance; but it is so remarkable and peculiar as to be worthy of mention.

Subsequent progress of the case.—Under rest and the administration of digitalis some improvement took place; it was, however, only temporary. In the course of a short time the dyspnœa and præcordial distress were as bad as ever. The patient was at length persuaded to seek admission to the Infirmary, but he would only remain in the wards a few days. He then returned home, and in the course of a short time died. No post-mortem was obtained.

Remarks.—The case is an excellent example of latent heart disease. It cannot, I think, be doubted (from the extensive hypertrophy of the left ventricle) that the aortic regurgitation, which was obviously the chief and primary lesion, had been present for a considerable time. The fact that for at least a year before the patient found it necessary to consult a physician, he had been affected with temporary attacks of vertigo, corroborates this view; and I may remark in passing, that in many cases of advanced regurgitation vertigo is often, for a time at all events, the chief, or the only, symptom.

It is probable, I think, that the cardiac lesion had its starting point in the attack of rheumatic fever thirteen years before. But be that as

it may, the aortic regurgitation had evidently been so effectively compensated, that it was not until an attack of bronchitis, and, perhaps, endocarditis, upset the balance, that shortness of breath or any other cardiac symptoms were experienced.

The chief point of interest in the case—and the one to which I wish particularly to refer—is the fact that a well-marked presystolic thrill and murmur were present in a case of aortic regurgitation in which the cardiographic tracing seemed to show that there was no mitral stenosis.

In those cases of aortic regurgitation in which a presystolic murmur is heard during life, and in which no mitral stenosis is found after death, I have been in the habit of thinking that the murmur in the mitral area was simply the aortic diastolic murmur, heard at the apex, as presystolic.

Such an explanation obviously cannot apply here; for, although the presystolic murmur might perhaps be produced in this way, the well-marked presystolic thrill (which was even more distinct than the murmur) can hardly be accounted for in this manner.

It must, in fact, I think, be conceded that the presystolic murmur and thrill were generated at the mitral orifice; and that they were not merely the vibrations of an aortic diastolic (regurgitant) current heard and felt in the mitral area as presystolic.

This being granted, the question next arises, "Were this presystolic mitral thrill and murmur indicative of organic disease (stenosis)?"

For the reasons already indicated (and more especially because of the fact that there was no lengthening of the diastolic portion of the cardiographic trace, and because of the presence of the large wave (*g*) in the diastolic portion of the tracing), I am disposed to think that there was no appreciable degree of mitral stenosis; and, therefore, to suppose that this may possibly have been a case such as the late Dr. Austin Flint described. In the absence of a post-mortem it is impossible to speak dogmatically as to the condition of the mitral valve, but the case is of so much interest in connection with the late Dr. Flint's views that I have thought it my duty to place it on record.

Theoretically it is, of course, possible that a mass of vegetations adhering to the auricular surface of the valve might cause a presystolic thrill and murmur, without producing any appreciable amount of stenosis or obstruction. Such a condition, though theoretically possible, is practically very rare, even if it ever occurs.

As has been already stated, the fact that a presystolic murmur is rarely observed in cases of aortic regurgitation constitutes, in my opinion, a very serious objection to Dr. Austin Flint's theory.

Granting, however, that a presystolic murmur may be produced in cases of aortic regurgitation in the manner that Flint supposed, it is quite obvious that since its occurrence is the rare exception rather than

the rule, there must be some peculiarity in those cases of aortic regurgitation in which it is present.

These theoretical views were fully explained to the members of my clinical class when the patient first came under observation (October, 1886); and subsequently to the members of the Medico-Chirurgical Society of Edinburgh, to whom the cardiographic and sphygmographic tracings of the case were shown.

It was then suggested that if Flint's facts and theory are correct, the occurrence of this murmur may perhaps be explained by supposing that in those rare cases in which it is met with, the lesion chiefly affects the posterior coronary segment of the aortic valve, with the result that the full force of the regurgitant current falls, as it were, upon the great anterior segment of the mitral valve, forcing it into the position which Flint has described as essential for the production of the murmur. It was stated that as yet I had no pathological facts to support this view; and reference was made to the case of rupture of the posterior coronary segment of the aortic valves, which I have recorded in my *Diseases of the Heart*, page 502, and in which no presystolic murmur was observed; and to Sir Walter Foster's view as to the direction in which the murmur is propagated in such cases.

I have noted with great interest that identically the same explanation of the manner in which the murmur may perhaps be produced has also been advanced by Dr. John Guitéras (Charleston, S. C.). In the second volume of the *Transactions of the Association of American Physicians*, Dr. Guitéras has an important and interesting paper on direct functional murmurs, in which he states that he believes "that obstructive functional mitral murmurs are of frequent occurrence in aortic regurgitation," and in which he says, "I maintain that those propagated murmurs are, in fact, mitral obstructive murmurs, and that they are more apt to develop when the posterior aortic segment is affected, because in such cases the regurgitant stream is brought to bear directly against the anterior leaflet of the mitral valve."

Further, Dr. Guitéras actually records a case of aortic regurgitation (Case III.), in which a presystolic mitral murmur was heard during life, and in which the post-mortem examination showed the entire absence of mitral stenosis and marked disease, more especially of the intercoronary segment of the aortic valve.

This case is of such importance that I make no apology for quoting the details in Dr. Guitéras's own words.

CASE.—H. A., aged fifty-eight. The physical signs in this case pointed to an enormous hypertrophy and dilatation of the heart, with dilatation of the arch, and obstructive regurgitant lesion of the aortic valves. The double aortic murmur was sawing in quality, and could be heard all over the sternum. At the fourth, fifth, and sixth interspaces along the left border of the heart, there

was a low-pitched, rumbling murmur, which was recognized by all those who examined the case as distinctly presystolic in time.

Post-mortem. The heart weighed twenty one and one-half ounces. The aortic valves were short and thickened, especially about the edges. The intercoronary segment presented a button-hole slit with thick hard edges, the result of sclerotic changes around a congenital fenestration. The mitral leaflets were opaque, large, and slightly thickened, but evidently competent, non-adherent, and smooth. The mitral orifice admitted the introduction of three fingers. The right heart was much smaller than the left, and its valves were healthy.[1]

The cardiac pulsations are arranged in groups of four beats (1, 2, 3, and 4), each of which has special characters. The characters of the first, second, third, and fourth tracings of each group of four pulsations are, it will be seen, the same.

AN UNUSUAL CASE OF CILIARY NEURALGIA WITH AN ERRATIC HISTORY; A CLINICAL STUDY.[2]

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and
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Agnes L., a widow, aged fifty-seven, born in Ireland, was admitted to the Philadelphia Hospital, August 21, 1880, complaining of pain in a scar situated upon the ninth rib in the mammary line. It occurred at varying intervals, sometimes being absent for several days, but usually returning every second day.

History.—The patient's father died at the age of sixty-two from meningitis following a sunstroke. She was an only child, her mother having perished when she was born. As a child she suffered from the ordinary exanthemata and, when a young girl, had an attack of typhoid fever. At the age of sixteen she was married and in her eighteenth year was delivered of her first child. She subsequently gave birth to five other children, the last when she was thirty-six years of age. In 1861, or six months after the birth of her last baby, her husband and eldest child died suddenly of smallpox. The receipt of this news, which was rudely communicated to her, produced an illness which began with unconsciousness and continued in various periods of delirium and hallucinations. At the end of several weeks the mental equilibrium was restored and convalescence progressed to perfect recovery. The attending physician told her that her sickness had been an attack of "brain fever."

[1] Transactions of the Association of American Physicians, vol. ii. p. 39.
[2] Read before the College of Physicians of Philadelphia.

Through her entire married life her health had been exceptionally good, and there were no indications of uterine disease or history of syphilitic infection. In 1868 she had a fall and struck her left side against a projecting stone producing a severe contusion. This subsided with the exception of one spot, then about the size of a pea, which, she says, "looked like a blood-blister." This spot became elevated and gradually enlarged, while its color faded. In three years it had reached a sufficiently large size to cause considerable annoyance, and was, moreover, the seat of irregular, dragging pains, easily allayed by the application of hot fomentations. In 1871 the tumor was removed, but its exact nature is unknown. For several years subsequently she enjoyed good health, was able to work regularly and support her family. At the end of this time she had a severe attack of intermittent fever lasting six weeks. For one month after recovery from this illness her health appeared to be in its usual state.

In July, 1880, she began to have pain in the cicatrix which resulted from the removal of the tumor. This pain differed from anything she had previously experienced. It was intense, lancinating in character, and came upon alternate days at about ten o'clock in the morning. During each pain-period the scar flushed and took on an angry look. When the pain subsided the color faded. No remedial agency, except a hypodermatic injection of morphia, gave relief. She endured this state of affairs for six weeks and then sought relief in the Philadelphia Hospital, where she was admitted August 21, 1880. She first entered the surgical wards, but after a month of fruitless treatment was transferred, September 21st, to the nervous wards. For several weeks internal remedies were tried in vain, when, by Dr. H. C. Wood's order, the painful cicatrix was removed. For six weeks there was an absolute cessation of pain, when, quite as suddenly as at its original onset, the pain returned with redoubled severity in the old situation. The attacks now usually occurred twice a day, at about ten in the morning and six in the evening, and were accompanied by the flushing of the tissues before described. No especial change, except quite temporary periods of relief, in the patient's state took place until the spring of 1881. Then, by the advice of Drs. Wood and Mills, under whose care she had been, active counter-irritation was performed. Dr. Pancoast made several pronounced applications of the actual cautery, over the posterior roots of the spinal nerves in the lower dorsal region. From the time of this application, for several months (probably two) she was entirely relieved of her sufferings. So radical did the cure appear to be that she was in the act of leaving the hospital when she was seized with pain in the left eye. As before, the pain was intense, lancinating in character, as if a sharp instrument was being thrust rapidly through and through the eyeball. The lids became congested and swollen, the conjunctiva reddened, the lachrymal secretion increased. For some time numerous and various remedies were tried without any but the most temporary results.

She was then transferred, May 20, 1882, to the eye ward, and became Dr. Shakespeare's patient. The pains were frequent, sometimes they occurred daily, sometimes twice a day, but occasionally were absent for a week, never, however, longer than for two weeks. A thorough and systematic anti-malarial treatment was ordered, even in so far as to use a decoction of lemon after the manner of Tommasi-Crudeli. As each successive remedy was tried the result and experience of the past were

repeated. Temporary relief would be obtained, then the effect of the remedy would fail and finally the pains would recur. A careful examination now revealed the following interesting facts. Preceding and during a pain-period marked tenderness over the middle cervical sympathetic ganglion of the same side was manifest. Moreover, pressure upon the eye produced pain in the region of the ganglion, and, *vice versâ*, pressure upon the ganglion caused pain in the eyeball. A similar tender area was found along the spine, directly between the shoulder blades. This led to a return of counter-irritation as a means of treatment. Beginning with iodine and ending with the actual cautery a succession of these agents was employed posteriorly on the left side of the neck and over the spine between the scapulæ. The actual cautery proved most efficacious and for several months the patient was free from her distressing affliction.

For the second time this unfortunate woman believed herself finally rid of her enemy and was in the act of gathering together her effects preparatory to leaving the hospital, when the pain recurred with all its former severity and attended by all its former symptoms. A seton was now introduced into the tissues at the back of the neck, and for a time, as with everything else, relief was experienced, hope returned, only to be displaced by a recurrence of the pain.

Examination of the interior of the eye never revealed any unusual features, as is evidenced by the following description: Round nerve, regular in outline, border distinct. Fundus not noteworthy beyond a peculiar curve of the lower vein. Inasmuch as the pain-periods were accompanied with great swelling of the conjunctiva the nutrition of the cornea was gradually impaired and a form of keratitis developed. This appeared as a curious opacity in the inferior half of the cornea, about midway between the centre and the lower limbus. This opacity, viewed by the ophthalmoscope, appeared to have dark processes like roots radiating from its upper edge. There was no connection between this and the iris or the anterior chamber. The pupil was normal, the anterior chamber of natural depth. There was never any increase of tension, and the field presented no distinct limitations.

In spite of a return to former lines of treatment and trials with all manner of general and special tonics, alteratives, and anti-rheumatic remedies, the pain continued and came with distressing frequency and severity. The keratitis increased, useful sight was obliterated, and the patient begged that the offending eye be removed. Although warned that the removal would in all probability only occasion a shifting of the seat of the affection, she was persistent in her entreaties, and her request was finally acceded to. In exactly three weeks after the enucleation was performed the pain appeared in the right eye in character precisely similar to that which had formerly had its seat in the left one, and accompanied by tenderness of the middle cervical sympathetic ganglion of the right side, just exactly as it had previously been present upon the left side.

Examination of the eye revealed the following features: Iris moved sluggishly to changes of light and shade. Mean size of pupil one-third the size of the cornea. Iris normal in appearance. Media clear. Outline of the optic nerve regularly oval, its long axes 75°. The color of papilla slightly brick-dust. The outer half somewhat paler than the inner, and the corresponding scleral ring more distinct. The vessels

were normal in their course, the arteries probably a little lessened in their calibre. There was slight narrowing of the visual field on the nasal side and above and below. Tension of the eye normal.

To detail the symptoms and course of this case from this period up to the present year would simply be to repeat what has already been described, with the exception of one symptom, viz., the marked tenderness over the middle cervical sympathetic ganglion. This symptom was no longer a characteristic one in June of this year, when Dr. de Schweinitz took charge of the wards. Exactly when this curious tenderness began to subside cannot be definitely stated. Even now, during a pain-period, it is perfectly easy to demonstrate an area of distinct discomfort upon deep pressure over the ganglion, although there is no longer a sense of pain, nor does pressure on this region produce pain in the eye as it formerly did.

A careful reëxamination of the eye at this time showed the appearances before recorded to be unchanged. Moreover, a keratitis in all respects similar to the one which had developed in the left eye, had also appeared in the right one as the sequela of many pain-periods. The light projection was good in all parts of the field. A perimetric chart of the field of vision showed no defects other than those explained by the corneal opacity and a somewhat drooping upper eyelid. No increase of tension was observed at any time. The pains now occurred with great frequency, always once daily about 10 A. M., sometimes twice, when the second one would take place about 7 P. M., occasionally a third one in the middle of the night or early morning. The onset of a pain was as sudden as a lightning-stroke, was instantly followed by œdema and discoloration of the eyelids, reddening and swelling of the conjunctiva and excessive lachrymation. A brawny flush overspread the brow and face, the veins became turgid, the carotids throbbed visibly, the woman bent and trembled in her agony, and presented a picture of utter misery seldom witnessed. If an anodyne was withheld, in a few minutes a muco-purulent catarrh appeared and within the hour gray sloughs upon the conjunctiva, until the whole eye resembled, at the height, an attack of purulent ophthalmia. If morphia sufficient to stop the pain was given, and it was the only remedy of any avail, the appearances just described would subside as quickly as they had appeared. We have often observed an attack come on, reach its height, and disappear with scarcely a remaining trace within an hour or at most two hours. A careful retrial of former remedies was instituted. Quinine, arsenic, and oil of eucalyptus produced no results. Anti-rheumatic remedies, especially the salicylates and oil of gaultheria, gave, if any, the most temporary relief. No favorable response was given to antipyrin and antifebrin. The former was used not only by the mouth but also hypodermatically after the manner of Germain Sée.[1]

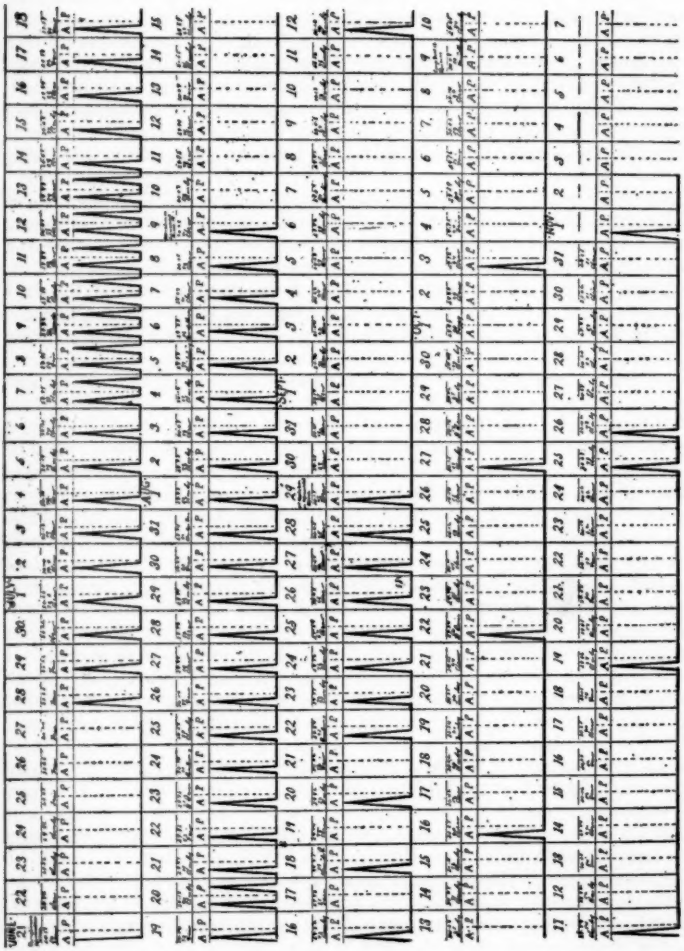
It was observed that the pain apparently started just below the tendo-oculi, and after its subsidence this spot remained tender. Partially inspired by this fact, and remembering the published successes of Badal[2] in the treatment of glaucoma and ciliary neuralgia by stretching and extirpation of the external nasal nerve, an operation of this kind was

[1] It may be interesting to note that during the free administration of antipyrin the patient was seized with a sharp attack of dysentery, abdominal pain, tenesmus, and frequent bloody stools.

[2] Traitement de douleurs ciliares par l'élongation du nerf nasal externe. Ann. d'ocul., Brux., 1882, lxxxviii. 241–253.

determined upon. Following the method described by Brailey (*British Med. Journal*, Oct. 10, 1885), the supra-trochlear nerve was exposed, stretched until it broke, and then a piece one centimetre excised. This

FIG. 1.



Tracing representing pain periods during 134 days. Each triangle represents a pain-period; the unbroken line the absence of pain. The condition of temperature, etc., is noted above each day. A=A. M., P=P. M.

operation was performed on June 21, 1887; the patient having had a pain shortly before the incision. Healing was perfectly normal. For one week there was absolute relief, but exactly seven days later, or on

the 28th of June, the pain returned. At first this was less violent than formerly, but soon returned with all its severe and usual characters and also its tendency to appear about 10 in the morning and 7 in the evening.

Experiments now elicited the fact that if at the beginning of an attack a hypodermatic of half grain of cocaine was injected along the course of the supraorbital nerve the pain would be distinctly allayed, although it would return after the effects of the drug had passed away. This led to the second operation of stretching and excising a portion of the supraorbital nerve on August 9th. A period of relief again occurred, but precisely seven days later, viz., August 16th, a slight but still decided pain appeared, and two days later an intensely severe one. Disappointed at the very limited result of this operation and also noting the small area of anæsthesia which had resulted (an oval patch just above the brow) it was thought that probably a branch and not the main stem of the nerve had been secured. Hence the incision was renewed and a careful dissection made down to the foramen, where the nerve was seized, dragged forward and cut off, and then dissected up for two inches and excised. For two weeks there was an entire absence of attacks, but on the fourteenth day a slight pain occurred, and four days later a severe one. Thus the tendency for these attacks to return on the seventh or multiple of a seventh day was again manifested. From this time on, however, this

FIG. 2.

Shaded portion represents the area of anæsthesia after excision of the supratrochlear and supraorbital nerves.

rule was not strictly adhered to and the type occasionally varied, as an examination of the accompanying chart, which represents the pain periods during the one hundred and thirty-four days, will show. It will be seen that pains appeared upon the fifth, sixth, and eighth days, as well as upon seventh days.[1]

[1] At the present time the type has been reëstablished and the pains occur weekly, just seven days almost to the hour elapsing between each pain.

The condition of the atmosphere and the changes of the weather have no influence in the production or absence of pain in this woman.

Even after the violent ciliary neuralgia that this patient has suffered and in spite of the scar tissue in the cornea, the vision remains fairly good. At its best it is $\frac{15}{XL}$; three hours after an attack $\frac{15}{LXX}$, while during a pain-period acuity of sight is reduced to the mere perception of large objects. The field is as has already been described.

The mental condition is excellent, the memory entirely unimpaired. The knee-jerks are perfectly normal. There is no region of impaired muscular ability or unequal muscular energy. Hyperæsthesia and anæsthesia are absent, except the area of anæsthesia which followed the nerve section. The blood has been examined before, during, and after pain-periods in order to determine the presence or absence of the microörganisms peculiar to malaria. These examinations have been entirely negative. Dr. Osler and Dr. G. Dock kindly aided in this investigation. The blood had not only been taken in the usual manner from the finger, but recently we introduced a sterilized hypodermatic needle into the spleen, after the manner described by Dr. Councilman,[1] without discovering any evidences of chronic malarial poisoning. Repeated examinations of the urine have yielded a specific gravity varying from 1.012 to 1.022; the entire absence of albumen and sugar; a sediment negative, except upon one occasion, when a few small hyaline casts were discovered.

Our colleague, Dr. John Musser, has kindly examined the heart and splenic area and reports as follows: High tension, relative accentuation of the second sound, hypertrophy of the left ventricle and two systolic exocardial friction murmurs. Loud venous hum in the neck. Spleen not enlarged. A thorough inspection of the naso-pharynx by Dr. E. Martin revealed the parts in a fairly normal state; this is especially true of the left side. Upon the right side a small hypertrophy projects into the nasal cavity. The sense of smell is less acute upon this side. The upper jaw contains no teeth except two fragments—the remains of canine teeth. In the lower jaw the incisors, canine, and two bicuspids remain, and are not carious. The gums are not tender in any place, and there are no appearances of such morbid processes as the late Prof. Gross has described to be a cause of neuralgia. The tongue is clean, the appetite good, the digestion unimpaired. There is no evidence of hepatic derangement.

Dr. B. C. Hirst has made a utero-vaginal examination and reports the condition perfectly normal for the patient's time of life; the uterus and broad ligaments are healthy, the ovaries unrecognizable. The temperature usually varies from 97° to 100.2°, and this variation has never conformed to any regular type. This character of temperature, occasionally slightly above the norm and again below it, is, we think, always present. It has certainly always appeared whenever any thermometrical records have been made.

It has seemed to be the part of wisdom simply to present the report of this case without entering upon any theoretical considerations, for the

[1] Lecture to Path. Soc. of Phila., Oct. 17, 1887. Further Investigations with the Corpuscle of Laveran.

good and sufficient reasons that seven years of theorizing and experiment have failed to achieve any very brilliant results. Quite naturally the malarial origin of this disorder has been discussed, but it certainly falls in the light of the failure of therapeutic tests and the examination of the blood.

The possibility that this is a form of rheumatic or gouty neuritis is deserving of respect. But inasmuch as there is an absence of any rheumatic history, of any symptom indicating a lithæmic diathesis, and, to a less degree, as there was no response to anti-rheumatic treatment, it seems an untenable position. Prosopalgia, of the most violent type, has certainly followed the pressure of growths upon the Gasserian ganglion, and in a case by Laveran a fibrous degeneration of the ganglion itself was the cause of the pain. It is difficult, however, to accept this explanation in the face of the history of this disorder, beginning, as it did, in a cicatrix in a region under the supply of spinal nerves, necessitating, moreover, as it does, the belief that first the left and then the right ganglion were respectively the seats of disease.

The idea that these pains may be due to a disorder of the sympathetic nervous system and depend upon derangement of the vasomotor tonus presents to us, we confess, many attractions. Dr. Wood has pertinently remarked, "These severer forms of prosopalgia are capable of being arranged in two groups—those in which a lesion can and those in which it cannot be demonstrated." This is certainly one of the forms in which, thus far, it has not been demonstrated.

LOCALIZED UNILATERAL SWEATING IN THORACIC ANEURISM.[1]

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The object of this paper is to bring before the notice of the profession a symptom of thoracic aneurism, previously unobserved—localized sweating over an area corresponding to the distribution of those intercostal nerves which were thought to have been pressed upon by the tumor.

Johnson, æt. sixty-two, colored, a barber by trade, was admitted into No. 11 ward of the Montreal General Hospital on the 31st of December, 1885, complaining of severe pain in the epigastrium and dyspnœa upon exertion.

This pain began six years ago in the left side of the chest, where it is

[1] Part of a paper read before the Canada Medical Association, at Hamilton, Ontario, 1887.

still sometimes felt, and gradually worked its way to the present site. The patient can remember, too, having suffered from pain in the side, occasionally, as long as twenty-five years ago, but does not think it was exactly the same kind of pain. Of late years, though it has varied in intensity, yet it has never been absent. It was a stabbing pain in paroxysms lasting about half an hour, and was accompanied by attacks of retching and by dizziness, so that it was regarded at one time as dyspepsia, at another as a bilious attack. Latterly it had become very severe, so that he was obliged to seek relief at the hospital. Dyspnœa on exertion was first experienced about one year ago, and has been gradually becoming worse ever since. During the last two months a sense of suffocation has prevented his sleeping upon either side.

Palpitation, syncopal attacks, or œdema of the feet, have never been present, nor has he ever suffered from severe cough, hæmoptysis, or night sweats.

The patient has never had to gain his living by hard manual labor, and has always been very temperate. Has never had syphilis. His family, five in number, show no sign of constitutional disease. His father died at twenty-four, cause unknown; mother lived to eighty, dying of old age.

Present condition.—The patient, who is above the average height, presents a fairly healthy appearance. Lately he has been losing weight and his voice has been husky and weak for the last four years. The muscles, though not highly developed, are in a state of fair nutrition. The skin is dry and scaly, the countenance expressive of dyspnœa, and there is inability to lie down with comfort. The pupils are of normal size and not unequal. There are no superficial venous enlargements, but pulsation is visible in the arteries of the neck and upper extremities. The most prominent symptom is pain in the chest, always in the left side, in the neighborhood of the fifth and sixth ribs, usually much worse at night, and occasionally felt shooting down the inner side of the left arm, but not so severely now as formerly. The pain is unaffected by breathing, coughing, or by movements of the arm or trunk. A slight cough with a small amount of mucous expectoration is present. There is constant dyspnœa, which is greatly aggravated at night, and owing to which he is almost entirely deprived of sleep, but during the day he dozes frequently and is at all times more or less drowsy. The temperature is normal, the pulse of a decidedly collapsing character, 80, regular, and not unequal on the two sides.

Physical signs.—The upper part of the chest, particularly on the right side close to the manubrium, is prominent and there is a heaving impulse over this region generally, and very extensive pulsation in the epigastrium. The apex of the heart has undergone outward displacement to the nipple line, and beats forcibly but regularly between the fifth and sixth ribs. No impulse or vocal fremitus is communicated to the hand placed over the prominence at the upper part of the chest. No tugging at the trachea synchronous with the heart's systole can be felt. In the left interscapular region, over an area limited above by the spine of the scapula and below by its angle, there is a remarkable prominence of the chest wall which is distinctly pulsating, and over which a heaving impulse is plainly felt.

The percussion note is clear over the front of the chest, except just over the right border of the manubrium, where there is a dull area cor-

responding to the above-mentioned prominence. At the apex no murmur can be heard, nor is any cardiac sound propagated in the direction of the left axilla, but at the base there is a loud rasping double murmur which is transmitted up and down the sternum. The maximum intensity of the systolic murmur is at the aortic cartilage, while that of the diastolic sound is at the lower end of the sternum.

Posteriorly there is a distinct bulging of the chest wall. In the left interscapular region there is also visible pulsation, but no thrill or perceptible vocal fremitus. The pulsating area is dull on percussion and occupies that portion of the interscapular region corresponding to the third, fourth, fifth, and sixth ribs. Over this area a faint systolic murmur can be heard. The base of the left lung is dull nearly as high as the angle of the scapula. The breath sounds at the back are weak generally, but particularly in the left lung, where expiration is prolonged. Over the lower part of this lung breath sounds are absent.

The digestive functions are properly performed, the appetite fair, the bowels regular, but occasionally attacks of pain at the epigastrium with pyrosis are experienced. The liver and spleen are of normal size. The urine is healthy.

Treatment.—On admission and for two months afterward he was obliged to remain in bed in a sitting posture, but after that he was able to lie down and afterward to move about the ward. Iodide of potash in ten grain doses three times a day has been given from the day of admission, December 31, 1885, to date. No particular restrictions as to diet have been made.

So far, then, we have distinct evidence that a solid pulsating tumor occupies a large portion of the chest, and we believe it to be an aneurism of the descending aorta, probably involving the arch also, interfering with the cardiac plexus, the pneumogastric and recurrent laryngeal nerves, as shown by the anginal attacks, and the hoarseness and weakness of the voice. The œsophagus escaped pressure, as it usually does. Atheromatous changes similar to those which originally weakened the aorta have rendered incompetent the aortic valves, probably by producing general enlargement of the aorta, separating the edges of the valves and bringing about the compensatory hypertrophy of the heart muscle. The unsupported column of blood in the great vessels suddenly drops after each systole, empties rapidly the arteries, and gives rise to the collapsing character of the pulse. Anæmia of the brain, induced by this cause, shows itself by the drowsy condition of the patient by day, though the pain and the dyspnœa keep him awake at night. The enlarged aorta is probably pressing upon the trachea and left bronchus, partially cutting off the supply of air to the left lung, and the return of blood by the left pulmonary veins is interfered with, the breathing being weak on the left side and breath sounds absent at the left base. Pressure on the intercostal nerves of the left side is shown by the continual presence of pain of a neuralgic kind in the left breast, occasionally passing along the inner side of the arm by transference to the nerve of Wrisberg. Erosion of the ribs and vertebral column has taken place.

For the first six weeks in hospital the condition remained in the main unchanged. There was generally very severe pain complained of at the seat of the aneurism posteriorly, and on several nights sharp anginal attacks had occurred. On the 17th of February, 1886, it was first noticed by the clinical clerk that there was *localized sweating* over an

area on the left chest wall, which corresponded more or less accurately with the course of the fifth and sixth ribs. The skin generally was unusually harsh and dry, but over this area there was continuously an oozing of perspiration which could be both seen and felt. At intervals this sweating was present from the day when first noticed up to the middle of May, and did not seem to be dependent upon or coincident with the attacks of pain and dyspnœa, though the patient noticed that he has been free from pain since the sweating ceased, nor could it be determined that it had occurred more copiously at one time than another. Several other nervous manifestations were also observed. On the 5th of April a sudden attack of severe and continued tremor in the left leg set in, which lasted altogether about twenty minutes, and was accompanied by nearly total loss of sensation over the whole body, and after this tremor had subsided analgesia of the left side remained and was present up to the time of his leaving the hospital in June.

Any record of the occurrence of localized unilateral sweating in thoracic aneurism is unknown to me. The cause is not very difficult to conjecture, that with such a large tumor pressing upon and eroding the dorsal vertebræ there must be pressure upon the origin of the intercostal nerves is safe to assume. But it is a question in physiology whether ordinary irritation of a mixed spinal nerve can produce sweating in the distribution of that nerve. Physiologists hold that inasmuch as there is a sweating centre in the medulla oblongata from which fibres are sent along the ordinary mixed nerves, sweating can be induced by direct or reflex stimulation of these nerves in an animal. On these grounds we may assume that the sweating of our patient is the result either of direct or reflex stimulation of the intercostal nerves which supply the area over which the sweating was observed. Moreover, this area corresponded to the distribution of the nerves nearest the centre of the tumor, and for that reason the structures most likely to be subject to pressure.

The other nervous symptoms I am inclined to attribute to anæmia of the nerve centres induced by the regurgitation at the aortic orifice, an effect not uncommonly observed in connection with that condition.

Johnson left the hospital in June, 1886, and owing to my absence from Montreal was lost sight of. On my return in September I made inquiries in various directions without success, but in the April of this year his wife came to ask me to see him. The old man whom I had given up as dead was now keeping a restaurant, and though the active part of the business was conducted by his wife and daughters, he was able to take a share in it. After leaving the hospital in June, 1886, he found himself very much better and able to walk no inconsiderable distances. He has been taking thirty grains of iodide of potash daily almost uninterruptedly since he left the hospital, getting the old bottle filled in the dispensary department. The urgent symptoms had left him, so that for the ten months he had no necessity for seeking advice, although the pain in the side has been severe at times and always has returned to the old site. Shortly after his return home the feet had become swollen and remained so, but for a few weeks. Had slept fairly

—that is, for three or four hours at night, and, perhaps, as many in the day—and been able once more to lie upon either side. The appetite has been good and digestion no longer troublesome—in short, he felt so well that he asked my advice as to the advisability of accepting employment in the Pullman Car Company.

Improvement was evident in the physical signs. The prominence at the upper end of the sternum was still there, but there was no visible pulsation, except in the epigastrium. Posteriorly, where pulsation had been so strongly evident, it was now barely visible, and that, over an area in diameter of about one inch situated just below the spine of the scapula. No bulging was perceptible, vocal resonance diminished. Dull area of the tumor extended from the spine to the angle of the scapula. At the base of the lungs breath sounds were weak, but there was no dulness.

This case illustrates admirably the benefit to be obtained from iodide of potash. There was no rest in bed, no restriction in diet, nothing was done for the man for the last sixteen months but to administer regularly and persistently iodide of potash with the effect described of relieving symptoms and of reducing the size of the tumor.[1]

CHRONIC PYELITIS,

SUCCESSFULLY TREATED BY KOLPO-URETERO-CYSTOTOMY. IRRIGATION OF THE PELVIS OF THE KIDNEY, AND INTRAVAGINAL DRAINAGE.[2]

By Nathan Bozeman, M.D.,
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I presented to the Ninth International Medical Congress a paper entitled "The Gradual Preparatory Treatment of the Complications of Urinary and Fecal Fistulæ in Women, including a Special Consideration of the Treatment of Pyelitis by a New Method and the Prevention of the Evils of Incontinence of Urine by a New System of Drainage." In this communication, I reported at length the history of a case of pyelitis which occurred as a complication of a large urinary fistula involving the urethra, uterus, and both ureters, and described its successful treatment by irrigation of the pelvis of the kidney. I also briefly alluded to the extension of the method to the treatment of a case of pyelitis not associated with a fistulous opening in the bladder, and stated that the orifice of the ureter was exposed by an operation which I ventured to name kolpo-uretero-cystotomy. My purpose is now to report more fully this latter case, to describe the operation, and to show the

[1] Dec. 2, 1887, Johnson is still alive, his general condition unchanged.

[2] Read in substance before the New York State Medical Association, September 27, 1887. The publication of the paper has been delayed until the completion of the treatment of the case.

application of intravaginal drainage to the treatment of the resulting incontinence of urine. To this I will add an analysis of my first, as well as my second case, together with such observations on disease of the urinary organs in women as seem appropriate.

In the paper referred to, I showed that in the treatment of cases of urinary fistula by the use of intravaginal drainage, by means of an instrument which I had recently devised, I was able to conduct away the urine from the bladder, and to prevent its contact with the vaginal mucous membrane and the integument of the external genitals, and surrounding parts. But as this description of the method has not yet been published, a short account of the principle upon which the action of the instrument depends is necessary in order to understand its use in the case to be reported. The essential part of the instrument is a hard-rubber or metal drain which fits in the vagina and is connected by a soft-rubber tube to a bag or urinal attached to the thigh near the knee. Its upper surface, which corresponds with the vesico-vaginal septum, is grooved or made concave and perforated by a number of small openings in such a manner that one or more of them must come in apposition with the fistula. The efficiency of the instrument depends upon the adaptation of the vagina to the form of any rounded body placed in its interior. The vaginal mucous membrane clings closely to the instrument and blocks up all the openings on its upper surface except those opposite to the fistula. So intimate is this contact, that sometimes an imprint of the upper or cribriform surface of the drain is left on the anterior vaginal wall and teat-like processes of mucous membrane, corresponding in size and position with the openings, are formed. The margins of the fistula are accurately applied to the instrument, and the defect in the septum is supplied by its upper surface. All communication between the bladder and vagina and every other avenue of escape being in this way shut off, the urine passes through the perforations into the interior of the instrument and is conducted by the tube into the urinal. The urine is thus drained directly from the bladder and does not come in contact with the vaginal mucous membrane. The vagina, therefore, is not drained and the designation, intravaginal drainage, is intended merely to suggest the use of an instrument placed within the vagina in order to conduct away the urine from the bladder.

The drain may have various shapes to adapt it to the peculiarities of the vagina in individual instances, or in order to subserve other purposes in combination with drainage, as, for example, support of the uterus or dilatation of the vagina. I have described several forms of the instrument and endeavored to give them distinctive names. In the treatment of the case to be presently reported, I used, for the greater part of the time, what I call a utero-vesical drainage support (Fig. 5).

It is a simple and convenient form and is especially applicable to cases where an opening is made in the bladder for the purpose of draining that organ or of exposing the orifice of one of the ureters.

CASE.—Mrs. B., aged thirty-four, was admitted into the Woman's Hospital on Feb. 27, 1887. She had borne five children and had had no miscarriages. Her labors were normal. Two years and a half ago, after having been married ten years, she became a widow. In the fourth month of her last pregnancy, about three years before I first saw her, she began to suffer from pain in the right lumbar region, and this symptom had continued and was growing worse at the time when she was admitted into the hospital. She described the pain as variable in character and aggravated by exercise; at times it was acute and radiated to the groin and down the thigh toward the knee; more frequently, the pain was dull and constant and confined to the lumbar region. Her urine had been for two and a half years and was still almost constantly stained with blood, which was sometimes present in sufficient quantity to cause a thick deposit at the bottom of the vessel.

In the course of her illness, the patient also complained of frequent urination and vesical tenesmus, and suffered from dizziness, headache, cold hands and feet, loss of appetite, and nausea and vomiting; her general health depreciated, and she lost flesh and strength. She was confined to bed for six weeks by a severe illness, which began in November of last year. At this time she suffered from partial suppression of urine, severe paroxysms of pain, nausea and vomiting, and high fever. In the course of this attack she found two calculi in her urine; the first was an inch and a half long and about the size of a slate pencil; the second was broken into several pieces. The hæmaturia ceased before the passage of the second calculus, but at the end of five days the urine again became bloody.

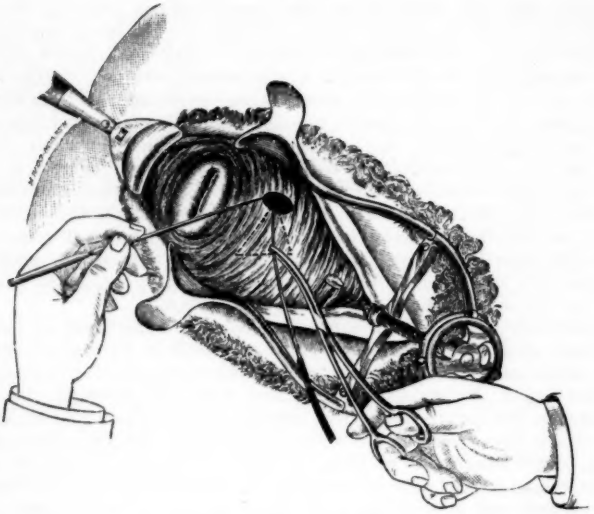
On admission she was much emaciated; her complexion was sallow, and her mucous membranes very pale. She was extremely weak, and suffering almost constant pain in the region of the right kidney. The urine was of a reddish color, acid in reaction, contained albumen, and deposited a thick sediment consisting of blood and pus. The uterus was large, retroverted, and slightly prolapsed. During the month following, I made two examinations of the bladder, but discovered nothing of importance, and failed in two attempts to pass a probe into the ureter. The effect of the exploration of the bladder through the urethra in both instances was to cause an acute exacerbation of the chronic cystitis which was present.

On May 6th the patient was anæsthetized, placed on the left side, and the anterior wall of the vagina exposed and made tense by means of my dilating speculum and perineal elevator (Fig. 1). The point of a narrow-bladed scalpel, mounted in a long handle, was made to enter the mucous membrane on the right side, about one inch and a quarter below the cervix uteri, and three-quarters of an inch away from the median line and a circular piece of the septum was removed, forming an opening into the bladder sufficiently large to admit the index finger.[1] The orifice

[1] The orifice of the ureter is normally situated about one and a quarter inches below the cervix uteri, but in this case, in consequence of the retroversion of the uterus, there was an anterior displacement of the cervix, and an apparent shortening of the space.

of the ureter was then discovered, and bloody urine was seen issuing from it. The vesical and vaginal mucous membranes were brought

FIG 1.[1]



The opening at the right ureteral angle of the trigone of the bladder, the result of the operation of kolpo-uretero-cystotomy, and the method of catheterizing the ureter. (Left lateral position.) The advantages of transverse dilatation of the vagina, for work of this kind, are well shown in the figure. The folds of the anterior wall are obliterated, the septum is rendered tense, the fistula is perfectly displayed, and easy access to the orifice of the ureter secured.

together at the border of the opening with a continuous catgut suture. A No. 8 French olive-tip catheter was then passed into the ureter

FIG. 2.

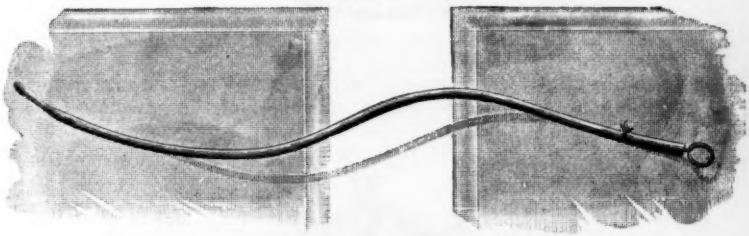
My uterine forceps.

The blades are shown partly open in order to display their short concave inner surfaces, which make it possible to seize the catheter longitudinally. The catheter lies in the groove between the blades, and its tip extends forward in nearly a straight line. This is a great advantage in introducing the instrument into the orifice of the ureter. Afterward it may be seized more nearly transversely, as shown in the figure.

[1] Figures 1, 6, 7, and 9, are from drawings made by my friend Dr. John Aspell, a member of the house staff of the Woman's Hospital. I am greatly indebted to him for the skill and accuracy with which they were executed.

and entered the pelvis of the kidney without meeting any obstruction.[1] Warm water was now injected through the catheter by means of a small piston syringe. About a drachm at a time was forced into the pelvis of the kidney and then allowed to escape. The irrigation was continued until the fluid which came away was free from blood. The catheter was left in place for thirty-six hours, and the urine was collected as it flowed directly from the pelvis of the kidney. When examined by Dr. Coe, the pathologist of the hospital, it was found to be alkaline in reaction, and to contain a large proportion of blood, pus, and crystals of triple phosphates. Bacteria were also present in great numbers. A week later the catheter was again introduced, and allowed to remain twenty-four hours. Its continued presence in both instances occasioned nausea and vomiting, and a good deal of paroxysmal pain. After its removal, the catheter retained the peculiar form imparted to it by the course of the ureter. It presented two curves the convexities of which were in opposite directions and in different planes; in other words, it had assumed

FIG. 3.



Spiral curve imparted to the catheter by the course of the ureter.

a spiral form. A stilet was shaped to fit the catheter in order to preserve its peculiar curvature (Fig. 3).

On the day following the operation a drainage instrument was intro-

FIG. 4.

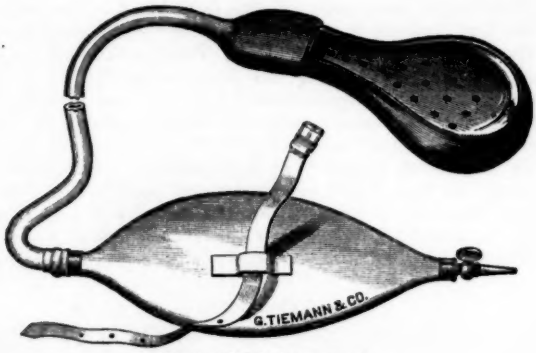
Utero-vesico-urethral drainage support.

duced into the vagina. The utero-vesico-urethral drainage support (Fig. 4) was used as long as the patient was confined to bed. After-

[1] The best instruments are those made by Vernas, of Paris. I now explore the ureter with a filiform bougie before passing a catheter. Unless the symptoms are urgent, further experience leads me to advise a delay of ten days or two weeks after the opening in the bladder has been made before beginning the treatment of the pelvis of the kidney. Time is thus allowed for the swelling and tenderness about the orifice of the ureter to subside, and catheterization is more easy and less painful.

ward, the utero-vesical form (Fig. 5) was employed, because the former, while being better suited for the recumbent position, in consequence of

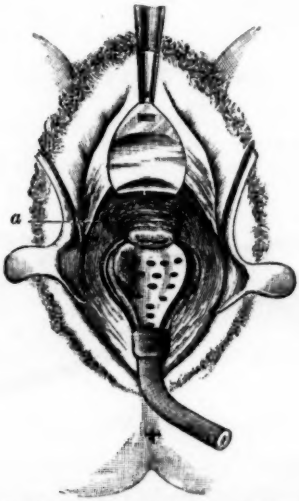
FIG. 5.



Utero-vesical drainage support.

its greater length extended beyond the vulva, and interfered with sitting. From the first, the drainage was satisfactory, and the presence of the

FIG. 6.



The utero-vesical drainage support in place (Front view dorsal position.)
The perineum is depressed, and the anterior wall is lifted up to expose the interior of the vagina, and to show the relations of the fistulous opening (*a*) and the cervix uteri to the instrument.

instrument in the vagina caused no discomfort or inconvenience. When the patient was sitting or standing, all the urine was collected, and none

escaped into the vagina; in the horizontal position a little was lost, but the quantity was not sufficient to cause discomfort or to excite vaginitis. In consequence of their relation to the cervix uteri and posterior *cul-de-sac*, two unexpected results followed the employment of either of the forms of the instrument. The menstrual blood was drained directly from the uterus, and the fundus, which was retroverted and prolapsed, was restored to its normal position by the presence of the rounded upper extremity of the drainage support (see Figs. 6 and 7).

FIG. 7.

Diagrammatic section in the dorsal position, showing the relation of the utero-vesical drainage support to the fistula (*a*), the vesico-vaginal septum, cervix uteri, and posterior *cul-de-sac* of the vagina. The dotted triangle is introduced to show the upward inclination of the instrument when the patient is lying down. It makes an angle of about thirty-five degrees with the horizon. This fact explains the less perfect drainage secured in this position.

The vesical and vaginal mucous membranes having united at the border of the opening by first intention, ten days after the operation, systematic treatment of the pyelitis was begun. Every day a flexible olive-tip catheter was passed into the ureter, and the pelvis of the kidney was irrigated with a warm solution of bichloride of mercury, 1 : 20,000.

The most convenient mode of introducing the catheter was found to be the one shown in Fig. 1; when done in this manner no difficulty was experienced. A rubber tube was attached to the lower extremity of the catheter, in order to lengthen the instrument, and to connect it to the nozzle of the syringe more readily. A small hard-rubber syringe was used. At first I injected only about one drachm at a time; afterward, I found that the best guide as to the quantity of fluid which should be injected, was the sensation of the patient. Whenever the pelvis of the

kidney was distended, a peculiar and characteristic pain was felt; the fluid was then allowed to escape, and the injection repeated until the washings were colorless and free from sediment. As the treatment progressed, the size of the catheter employed was gradually increased to a No. 13, and, if any useful purpose would have been served, I believe I could have dilated the ureter to a much larger size.

As a result of the spiral course of the ureter, the catheter as it entered rotated on a longitudinal axis. A given point on its surface, indicated by a mark, was seen to describe a complete circle. As the catheter passed toward the pelvis of the kidney, this point moved from right to left; and while the instrument was being withdrawn, the rotation took place in an opposite direction. I have verified this observation in other cases and found that in the left ureter the direction of the rotation of the catheter is reversed. Whenever the catheter was passed, the urine retained in the pelvis of the kidney flowed out. The quantity thus removed was found to be variable. If the patient had been standing or walking immediately before the introduction of the catheter in the left lateral prone position, there was found little or no accumulation of urine in the pelvis of the kidney; if she had been lying down a considerable quantity was removed. At the beginning of the treatment, this was sometimes as much as fifteen drachms. I was also able to measure the capacity of the pelvis of the kidney. The injection of fluid was continued, as already described (but with a larger syringe), until the peculiar pain was felt. The fluid was then allowed to escape and measured. The capacity of the pelvis, determined in this manner, was at first twenty-one drachms, but was at last diminished to five drachms, which, from my observations in other cases, I believe to be about normal.

In the course of the treatment of the case, I had constructed a flexible renal sound (Fig. 8), made of a delicate ribbon of steel twisted into a

FIG. 8.

Renal sound.

cylindrical form of a suitable size and length. With this instrument, I was able to explore the ureter and pelvis more easily and thoroughly than with a catheter; a calculus would also be more easily detected by means of a metallic instrument; but no foreign body in the pelvis of the kidney was discovered by its use.

While the treatment was being carried out, the urine as it came from the pelvis of the kidney was frequently examined and the quantity of pus and blood which it contained was found to be gradually diminishing. At the end of three weeks, the urine was perfectly clear and deposited no sediment. On June 25th, about six weeks after irrigation of the pelvis of the kidney was begun, the following experiment was made: The bladder was douched. The catheter was then passed into the right ureter and a drainage instrument was placed in the vagina. The urine from the left kidney, as it was secreted, flowed into the bladder and was collected by the drain; that from the catheter was received in a vessel placed between the thighs. In this way it was possible to collect at the same time and in separate vessels the urine secreted by each kidney. At the end of two hours, three ounces of urine had been collected from the left kidney by the drainage instrument, and four ounces by catheter from the right. The result of the examination of the two specimens, made by Dr. Coe, shows that the pelvis had returned to a normal condition. It was as follows:

	Color.	Reaction.	Sp. gr.	Albumen.	Sediment.
Urine from left kidney . .	Straw.	Neutral.	1010	None.	None.
" " right " . .	Amber.	Acid.	1020	None.	An occasional leucocyte.

As the urine returned to a normal condition, the symptoms improved. The distressing pain in the right lumbar region entirely ceased and the patient gained appetite, flesh, and strength. I believed haste in closing the opening in the bladder unnecessary, because by the use of the utero-vesical drainage support all discomfort from incontinence of urine was prevented. She was, therefore, sent home and instructed to return for the operation when her health and strength were entirely restored. She wrote me, August 12th, the following account of her condition:

"The drainage works perfectly, there is no escape of urine except sometimes a little while lying down. I do not suffer from any irritation whatever. The instrument keeps the uterus in position. I have not suffered any pain in the kidney. I feel better than I have for years. I have just weighed, so will acquaint you with the numbers, 109 pounds, having gained 19 pounds in three months, that is, since the operation. I am able to attend church services. I can either ride or walk, neither gives me any uneasiness. My friends look at me and speak of my improvement with astonishment."

The patient returned to the hospital on November 8th for the closure of the artificial fistula. She had been entirely free from pain since her discharge, had gained twenty-five pounds in weight, and become strong and well. On examination, the vagina and vulva were found to be in a healthy condition. Almost all the urine had been drained from the bladder and the normal position of the uterus maintained by the drainage support.

On the day of her return a No. 13 (French) catheter was passed into the pelvis of the kidney and allowed to remain four hours. The urine drawn off by the instrument was entirely free from pus. During the night following the use of the catheter, the patient suffered from pain in the loins and a feeling of soreness along the course of the ureter. The

next day pus and blood were found in the urine. A mild attack of cystitis, ureteritis, and pyelitis had been set up by the use of the catheter. The mischief probably resulted from the retention of too large an instrument in the ureter for so long a time. I thoughtlessly used the same catheter which had been employed six months before. The ureter was then dilated, meanwhile it had contracted and the instrument had become too large. Moreover, I did not pay as much attention to the cleansing and disinfection of the catheter as I should have done. A smaller instrument (No. 8 French) was, therefore, used in the subsequent treatment and care was taken to wash it thoroughly and to disinfect it with a solution of bichloride of mercury (1 to 1000).

FIG. 9.

The fistula closed by the button-interrupted suture. (Left lateral position.)
h, ends of sutures inclosed in a rubber tube. *e*, meatus urinarius. *U*, cervix uteri. *b*, lower part of ureter shown in dotted lines. *g*, vesical catheter. *d*, ureteral catheter.[1]

The pain soon ceased, and after a few irrigations of the pelvis of the kidney, the urine again became normal. The operation for the closure

[1] The ureteral catheter was not employed in this case. I have used it and advise its employment when the ureter forms a part of the border of the opening—*i. e.*, in uretero-vaginal fistulæ after their conversion into uretero-vesico-vaginal fistulæ. In these cases, in order to prevent obstruction of the duct, its lower extremity should first be slit up on the vesical side for about one-fourth of an inch so as to turn its orifice into the bladder; before the fistula is closed a No. 4 flexible English catheter should be introduced into the ureter for five or six inches, and afterward secured in place by tying it to the ends of the sutures as is shown in the figure. It may be removed at the end of twelve hours after the operation. Care should also be taken to straddle the ureter—that is, to leave a sufficient interval between the sutures which lie on either side of its lower end. This method of dealing with the ureter is introduced here because if, in the operation of kolpo-uretero-cystotomy, the opening were by accident made too high up, the ureter would be involved in the fistula, and might become everted, as is always the case in uretero-vaginal fistulæ.

of the opening in the bladder was, however, delayed for four weeks, until observation of the patient gave complete assurance of the subsidence of the inflammation.

On December 4th, the fistula was closed with the button-interrupted suture (Fig. 9). The line of coaptation measured about one and a half inches and four silver sutures were used. The second and third wires were passed half an inch apart so as to avoid all danger of obstructing the orifice of the ureter. The sutures were left long and their ends were enclosed in a rubber tube as shown in the figure. A No. 4 soft English catheter was placed in the bladder and secured in place by tying it to the wires opposite the meatus urinarius. The operation was followed during the first two or three days by a good deal of vesical tenesmus. The catheter was removed at the end of twelve hours. The urine was drawn and the bladder irrigated every six hours with a weak solution of boracic acid. Perfect union occurred. The sutures were removed at the end of seven days and the patient was allowed to get out of bed a week later. Some vesical irritability followed the operation, but it has gradually subsided.

On December 12th, examination showed that during the week following the operation, the fundus of the uterus had returned to its original position against the rectum, and the cervix became displaced toward the right, causing some distortion of the vesico-vaginal septum, and possibly some obstruction of the ureter. I believed that correction of the displacement was important in order to guard against recurrence of the cystitis and pyelitis. The vagina was, therefore, columned with dry cotton. After a few applications of the column my utero-vaginal support was introduced. The instrument kept the uterus in place satisfactorily; but the idea afterward occurred to me, that the use of the drainage support, which had held the uterus in position while the fistula remained open, might be continued (see Fig. 7). The experiment was accordingly tried, and it was found that the instrument was as efficient as a uterine support as ever. It held the uterus in position perfectly. I also discovered that when the openings in its cribriform surface were closed, the instrument tended to slip down and was no longer useful for this purpose. The drainage support was worn through the patient's last menstrual period. All the menstrual blood was collected by the instrument and conveyed to the rubber bag attached to the thigh in the same manner as before the fistula was closed. A smaller and more convenient receptacle might be employed to collect the menstrual fluid in menorrhagia.

The patient (Janary 11th), five weeks after the closure of the fistula, looks and feels perfectly well; the vesical and renal symptoms have all disappeared, and her urine is normal. She will, however, be kept under observation for a few days longer, in order to determine whether the correction of the uterine displacement by the use of the drainage support will be permanent.

(To be concluded.)

A CASE OF ADENO-SARCOMA OF THE DURA MATER SPINALIS.

By Eugene Hodenpyl, M.D.,
Second Assistant in the Laboratory of the Alumni Association of the College of Physicians and Surgeons, New York.

For the clinical history of this case I am indebted to Dr. C. R. Hexamer, House Physician, St. Francis Hospital, New York.

H. K., aged thirty-eight years, a native of Canada, a salesman, was admitted into the hospital July 18, 1887.

Family history: Negative.

Previous history: Patient said that up to the time of his present illness he had never been ill a day, except that he had had gonorrhœa once. He was a moderate drinker.

Present illness: About six months before admission he began to suffer from pain and soreness in the right side, which he located at a point one and a half inches above the anterior superior spine of the ilium; this he attributed to heavy lifting, to which he was unaccustomed. During the next three or four weeks the pain passed entirely around the body, causing the sensation of constriction, "as if I were wearing a belt." The pain was more marked while sitting than while standing. He now began to complain of "soreness" over the lower half of the spinal column. This sensation was apparently one of weakness rather than of actual pain. The pain in the right side gradually became more severe and constant, and finally extended to the left side.

Patient had been in a number of hospitals, but was regarded as a malingerer.

On admission he walked into the hospital, and from his gait and carriage appeared to be perfectly well. He stated that two days before he first noticed a sensation of weakness in both legs; but, as he was able to walk, no especial attention was paid to it.

Physical examination of heart and lungs was negative, and there were no evidences of syphilis. Examination of urine was negative. Six days after admission he complained that he was no longer able to stand, and examination at this time showed that he was unable to place his feet without looking at them, and that on closing the eyes the body would sway, and he was liable to fall. There was neither cremasteric nor abdominal reflex. Patellar reflex was diminished on the right side, and on the left was about normal. The voluntary movements were slightly irregular in the legs, and he had no definite conception of their position, *i. e.*, when crossed, spread apart, etc. There was diminished sensation in the legs, and the capacity for voluntary movement became more and more diminished in the lower extremities until about the middle of August (or about seven months from the commencement of the symptoms), when both sensation and the power of movement became entirely lost.

He gradually lost control of the bladder and rectum. Throughout the course of the disease the mental condition remained good. Toward the end bedsores developed and spread rapidly in spite of treatment. During the last two weeks delirium was often present. Respiration and deglutition became difficult, and he died September 21st, exhausted.

Autopsy: Examination of the spinal cord only was permitted. The cord and its membranes were removed together. There were no gross lesions observed except at the level of the eighth and ninth dorsal vertebræ. Here was a new growth on the external surface of the dura mater which encircled the cord except on its anterior aspect. This tumor was somewhat rough on its external surface, and the contiguous vertebræ were roughened and eroded. The internal surface of the dura mater was of normal appearance. The spinal cord at that part, enclosed by the tumor, was narrowed to about two-thirds of its normal diameter. (See Fig. 1.)

FIG. 1.

Tumor of dura mater spinalis with cord *in situ*. Natural size.

Microscopical examination: The dura mater at the seat of the growth was moderately thickened, but was not unusually cellular. A large part of the tumor was composed of small spindle and small round cells closely packed together. Between the cells was a delicate connective-tissue stroma. This part of the tumor had the characteristics of a moderately dense sarcoma.

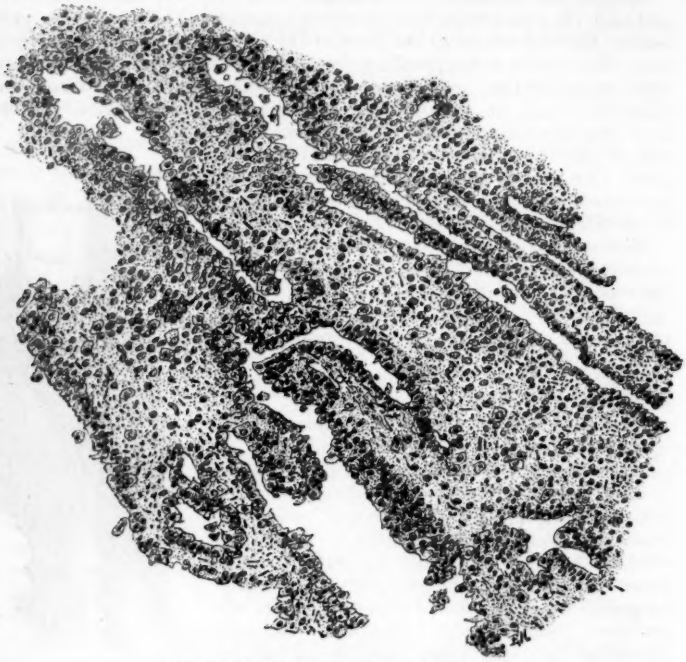
Some scattered portions of the tumor, making up at least one-third of its bulk, presented an entirely different structure. A series of tubules or long, narrow, irregular branching and occasionally anastomosing spaces were irregularly lined with polyhedral, cuboidal, or distinctly cylinder cells. A variable amount of rather loose, moderately cellular, connective tissue separated these gland-like structures from one another. (See Fig. 2.) Although distinctly glandular in type, there was, in places, an irregularity in the shape of these pseudo-acini which often rendered the interpretation of the pictures presented by the sections exceedingly puzzling. On the whole, however, the constant presence of a lumen and the irregularity, in many places, in the shape of the cells which surrounded it, stamped these parts of the growth as adenomatous.

Small irregular masses of osteoid tissue were scattered throughout the sarcomatous parts, especially in places where fibrous tissue was more abundant.

The tumor included one of the posterior spinal ganglia, which showed an increased amount of connective tissue in and about it, but the ganglion cells did not appear to be altered.

From the situation and condition of this tumor, as above described, it is difficult to say with certainty what its exact origin was; whether the external layer of the dura mater, the periosteum of the vertebræ, or the loose connective tissue which joins them. The tendency to formation of bone in the tumor would not be strongly indicative of its periosteal origin, since bone formation in the dura mater is not so very infrequent, and since, on the other hand, the periosteum was either primarily or secondarily involved. Aside from the practical importance

FIG 2.



A section from the adenomatous part of the tumor.

which attaches to all tumors of the spinal canal, this one seems to be of especial interest on account of the epithelial structures which so largely compose it.

It is difficult to account for the occurrence of a tumor of this character in this situation, except by Cohnheim's hypothesis of aberrant embryonic remains. The plausibility of this hypothesis is, in this case, enhanced by the occurrence of the tumor in a situation liable to irregularities in development during the formation and closure of the neural canal.

43 SEVENTH AVENUE, BROOKLYN, N. Y.

REVIEWS.

LEÇONS SUR LES FUNCTIONS MOTRICES DU CERVEAU (REACTIONS VOLONTAIRES ET ORGANIQUES) ET SUR L'EPILEPSIE CÉRÉBRALE. Par le DR. FRANÇOIS-FRANCK, Professeur remplaçant au Collège de France; Cours du Collège de France, 1884, 1885. PRÉCÉDÉS D'UNE PRÉFACE, par PROF. CHARCOT. Pp. ix., 570. Paris: O. Doin, 1887.

LECTURES ON THE MOTOR FUNCTIONS OF THE BRAIN, AND ON CEREBRAL EPILEPSY. By PROF. FRANÇOIS-FRANCK; with a PREFACE by PROF. CHARCOT.

THIS work constitutes a very important addition to the existing physiological data regarding the motor functions of the brain. The facts which it contains are of a familiar kind, for they lie in the line of the discoveries of Fritsch and Hitzig, Ferrier, Munk, Luciani and Tamburini, and as mere facts present little that is new. Yet they are not without importance. For as Charcot remarks in the admirable preface, "it is necessary for proper reasoning, as well in the domain of experiment by vivisection as in that of clinical observation, to separate radically empirical facts, purely descriptive, concerning cerebral localization, from theories pertaining to the physiological action of the brain. The first constitute the foundation upon which all subsequent structures rest; they can remain by themselves, independent of the second, which are merely accessory; and we know that by their immediate application they have already led to most important practical results: for it is around these facts that the *local diagnosis* of brain disease centres, an ideal diagnosis, now at last often reached and toward which all the best efforts of clinicians are bent."

Nor are the facts here presented without interest. For the methods pursued in the investigations undertaken are new, the results reached being recorded by the graphic method, which not only eliminates the personal equation in observation, but puts before us the results in an attractive form easily grasped at a glance. Under the direction and inspiration of Prof. Marey, of the Collège de France, Prof. François-Franck has made many physiological researches, notably those upon vasomotor action, which have established his reputation as an original and reliable investigator; but nothing which he has yet produced can equal for precision the present work. And his physiological knowledge is supplemented by clinical experience, so that, as Charcot says, "in no other work on neuropathology can one see to the same degree experimentation on animals and clinical observation in man, keeping equal pace with one another, each controlling the other, and both tending to a common end." The work, therefore, deserves careful notice. The first lectures contain a review of German, English, and Italian investigations, and an account

of the method employed, both in exciting the brains of animals by electrical currents, and in recording the muscular movements obtained from such excitement by the graphic method. The motor area of the brain is located, as by other observers, in those convolutions of the lower animals which are homologous to the anterior and posterior central convolutions of man.

Franck does not localize motor centres as exactly as Ferrier, nor does he lay off limited areas for special movements, as has been recently done by Victor Horsley (AMERICAN JOURNAL OF THE MEDICAL SCIENCES, April, 1887). He is content to affirm that the lower, middle, and upper thirds of the motor area have a functional relation respectively with movements of the face, arm, and leg of the opposite side of the body, irritation of these areas by electricity causing muscular contractions in their related parts. From these motor centres fibres start downward, which pass through the centrum ovale and internal capsule, and in the pyramidal tract of the medulla and cord to the motor cells of the spinal cord, which in turn are connected with the muscles. These fibres can be excited by electricity, with the result of producing muscular contractions, but the cortical centres react to a weaker current than do the fibres beneath them. In the internal capsule distinct fasciculi could be excited, showing that each fasciculus was related to a different limb. When the basal ganglia were excited no muscular contractions were produced, a result which does not harmonize with that of other observers, especially Nothnagel. The further the impulse has to travel, the longer the time require to produce the muscular contraction—hence the time elapsing between the irritation and the movement is greater when the cortex is excited than when the centrum ovale is excited; and is greater for the leg centres than for the arm. This is well shown by the diagrams prepared by the aid of a chronograph, p. 34. A number of shocks, each of which is insufficient to cause a movement, will, if repeated at sufficiently short intervals, cause motion—a condition which he terms the cumulative action of the cortex (phenomène de summation, p. 51). But continued excitement of the cortex results in a state of fatigue in which it loses entirely its excitability. A unilateral irritation of the cortex may cause bilateral movements. In this case the impulse of irritation crosses the median line twice, once at the medulla in the motor decussation, the second time a part of it returns in the spinal cord through the anterior decussation, at the level of the segments excited. The unilateral irritation in the brain, therefore, may excite both halves of the spinal cord. All other explanations of this phenomenon (such as that the irritation of one hemisphere spreads to the other through commissural fibres of the corpus callosum) are shown to be wrong by a careful series of experiments.

The results of electrical excitement of the motor areas are very carefully compared with epileptic phenomena in eight lectures (8th to 16th). It is well known that irritation of the cortex by electric currents often causes a series of convulsions identical with the epileptic convulsions observed in man. Franck has observed the order of extension of the spasm when a single centre is irritated. He finds that it is not uniform, but that general convulsions never begin simultaneously in all extremities. He, therefore, concludes that there is no general "convulsive centre," in the pons, or elsewhere, irritation of which will cause an epileptic attack. After an animal has once had one general convulsion from cortical irritation, it becomes susceptible to a repetition, and slight

irritation, formerly without effect, will produce one. If the cortical irritation producing the fit has been very severe, the fit is often followed by a condition of cerebral excitement, in which evidences of hallucinations and delusions are observed, lasting several hours. After a general convulsion, started by irritating a local motor centre, the muscles with which that centre is related remain paralyzed for a time. A fit can be suspended by artificial asphyxia, or by cardiac arrest, produced by irritation of the pneumogastric nerve. The only region of the cortex irritation of which will produce an epileptic fit is the motor region. When this is excited with a strong electric current the fit begins within two seconds. Irritation in other areas may extend to the motor area, and then cause a fit; the time occupied in the extension is in proportion to the distance of the seat of irritation from the motor area. Irritation on the parietal convolutions may be followed by a general fit, forty to sixty seconds after the irritation is begun, showing that this time is required for the extension of the irritation to the motor area. Strong irritation in the occipital lobe will not cause a convulsion until after an animal has been made epileptic by previous irritation of the motor or adjacent areas. But if the motor zone has been extirpated, then irritation anywhere of any strength will not cause an epileptic fit. The application of a freezing mixture to the cortex, or the injection of chloral into the arteries of an animal, will prevent irritation of the cortex from producing a general convulsion. Irritation then produces a single contraction. Irritation of the centrum ovale or internal capsule never causes an epileptic convulsion. If weak, it produces a single contraction in the muscles. If strong, it causes a state of tetanus. And this is beautifully demonstrated by the graphic method, the tracing of muscular contractions during an epileptic fit being wholly different from that of muscular contractions in tetanus. All these motor effects are, however, considered as indirect in their production. The motor centres do not govern primarily the muscles, but do govern the motor mechanisms of the pons, medulla, and spinal cord, which are directly connected with the muscles. Hence, the conclusion that "the cortex acts in cortical epilepsy as the epileptic zone does in peripheral epilepsy; it gives the signal for the attack by provoking the activity of cellular elements in the pons and spinal cord; these latter act finally on their own account and are the true exciting centres for the production of convulsions and the agents of their generalization" (p. 118). Yet cortical epilepsy and reflex epilepsy differ. "In reflex epilepsy the attack is quite typical, the clonic type with large movements predominating; the attack never begins with tetanus similar to that occurring in cortical epilepsy; if the reflex attack shows a tonic period, it only comes on late as the evidence of a cumulative maximal excitement, usually it intervenes between two clonic periods, a succession which is never observed in cortical epilepsy. But these differential characteristics are, after all, not so important as to establish an essential difference between the attacks. The conditions producing the attack are different in the two cases, and the difference in the results depends upon this difference. When the cortex is excited by repeated shocks, there follows an initial tetanization of the muscles, which remain contracted for a moment after the irritation is suspended and then clonic convulsions ensue, the muscles having received the maximum irritation at once. On the contrary, in a case of reflex epilepsy the initial irritation consists in a traumatic irritation, or an electric

shock, not of a tetanizing degree, and the reaction does not reach its maximum at once; it seems as if in this case the spinal cord becomes progressively charged in order to manifest at least its most violent reaction, while in the case of cortical irritation the greatest charge is produced at once, and the reactions follow, decreasing as they occur; the nature and the mode of action of the provoking excitement determine the kind of reaction. Hence, reflex epilepsy does not differ essentially from cortical epilepsy (pp. 122–124). Any one who reads these lectures carefully, and at the same time bears in mind the phenomena observed in patients suffering either from Jacksonian epilepsy or from general epilepsy, cannot fail to be impressed with the immense importance of the facts observed as affording adequate explanation of the means of production of the epileptic condition. The predisposition of an epileptic patient to have a fit after any serious irritation, psychical, physical, internal or external, central or peripheral, is shown to have its analogue in the condition produced in an animal after it has been subjected to cortical experiments. The extension of spasms from one limb to another until all are convulsed, so characteristic of cortical epilepsy, is well displayed in the diagrams of the effects of cerebral irritation. And a strong argument in favor of the cortical theory of all epileptic attacks could be drawn from the facts recorded in detail in these lectures.

Ten lectures follow (17th to 26th) upon the effects of cerebral irritation upon the respiration, heart action, vaso-motor tone, pupillary contraction, secretion, and excretion. This is a field which has never before been so thoroughly and accurately investigated, and here, again, the great advantage of the application of the graphic method of recording results is evident. The respiratory action in epileptic attacks, the variations in vaso-motor tone and in the pupils, the state of the skin and amount of sweat, and the excretion of urine after an attack are subjects never before investigated experimentally. Franck concludes that there are no true "organic centres"—*i. e.*, centres governing the mechanisms of organic life—to be found in the cortex. Thus, in regard to vaso motor tone, while a contraction of the vaso-constrictors can be produced by stimulus applied anywhere to the motor zone of the cortex, such a contraction is equally manifested all over the body, is not unilateral or limited to the limb whose motor centres are stimulated.

In regard to the dilatation of the pupil, it is established that the intensity of the excitement of the cortex determines the degree of dilatation of the pupil. Hence, in a cortical epileptic fit the sudden discharge results in a sudden dilatation of the pupil, which lasts through the tonic and into the clonic stage of the fit, and then decreases gradually till it reaches the normal as the convulsions cease. If, however, the convulsions are to be followed by post-epileptic hallucinations or delirium, this contraction of the pupil does not occur. In a simple excitement of the cortex by a single electric shock the dilatation of the pupil is single and does not persist—it ceases as the excitement ceases. And by a careful series of experiments it is also shown that the action of the pupil is wholly independent of vaso-motor conditions, there being no constant relation between vaso-motor constriction and dilatation of the pupil.

In regard to secretion the results are equally exact, and it is demonstrated that the influence of cortical irritation on salivary secretion is

wholly indirect. The fallacy underlying Ferrier's reasoning that because irritation of a certain area caused a secretion of saliva, therefore this area contained the "gustatory centre," is fully exposed, although no discussion of sensory centres is attempted. The facts contained in these lectures are new and interesting, and should be carefully studied by physiologists.

In the four following lessons (27th to 30th) the effect of destructive lesions of the motor area upon the voluntary movements of the body is considered. "Here the analysis of experimental results yields the palm to clinical observations. While the clinique furnishes few facts regarding the result of cerebral excitement it abounds in observations when we pass on to the examination of effects produced by limited lesions. The study of paralysis in animals dependent on operations, without being devoid of interest, is inferior in every point of view to clinical studies. The reason is, because the lower animals cannot be properly compared to man; in one the cerebral influence is slight and loss of large areas of brain may pass almost unnoticed, in the other the division of labor is more complete. In man the consequences of local disease are presented with the greatest nicety, and the differentiation of function is more completely demonstrated. Hence, clinical observation is of more service in determining the effects of destructive lesions than are experiments"—a position in which Franck is supported by all German, Italian, and American observers, and to which Ferrier must be mentioned as alone objecting. Holding this opinion it is not strange that the lecturer treats this portion of his subject briefly and does not offer any novel facts—but gathers his data from the cases of Charcot and Pitres. In the remainder of the book the mechanical excitability of the cortex, influences which modify cortical excitability, and the various theories explanatory of the mode of action of the motor areas, together with the objections to those theories, are discussed, and an appendix of one hundred pages contains a résumé of the experiments upon which the results stated in the text are based.

The work, as a whole, will receive careful consideration. It is for the French school what Ferrier's work is for the English, and Munk's is for the German—a classical epoch-making production, full of accurate observation, original in its methods of recording results, and especially suggestive in its application of experimental conclusions to clinical facts.

M. A. S.

THE RECTUM AND ANUS: THEIR DISEASES AND TREATMENT. By CHARLES B. BALL, M.Ch. Univ. Dub., F.R.C.S.I.; Surgeon to Sir Patrick Dun's Hospital; University Examiner in Surgery; and Member of Surgical Court of Examiners, Royal College of Surgeons, Ireland. 16mo. pp. viii., 410. Philadelphia: Lea Brothers & Co.

WE have given this book careful examination, and are impressed by its excellence and value. It belongs to a series of handy manuals by British authors, none of which is superior to this one. Indeed, it is rare to meet with a book in which are so happily combined thoroughness

and compactness, minuteness of detail, and brevity of expression, and where yet the subject is presented in an agreeable and easy style.

Mr. Ball has had extended experience with rectal disorders, while at the same time he has been a close student of the writings of others. As a consequence he has produced a most instructive, as well as a most readable book.

He begins with a most excellent description of the method of examining the rectum, and with Mr. Ball it is a method of carefully considered and exactly appropriate manipulations, well suited to give the precise information which it is impossible to obtain without a digital examination, and that a careful one. We notice that in this preliminary chapter Mr. Ball gives a carefully guarded opinion as to the introduction of the whole hand into the rectum, a procedure which he properly holds should not be undertaken upon slight grounds, or under the impression that it is a trivial measure.

We have seen no better, more clearly conceived, or more distinctly written account of rectal malformations than that contained in the second chapter. It consists of a study of the embryological causes which are responsible for the defect, and a succinct account of some of the nine varieties into which these abnormalities have been classified by Papendorf, and which has generally been adopted by modern writers. Each variety is illustrated by a satisfactory cut, which makes the description given in the text plain.

We have noticed this chapter particularly, not on account of its practical importance, but rather as affording an instance of the thoroughgoing work which has been put into the book. Many other chapters might have been equally well selected, but coming across it first, and finding how fully and fairly the matter had been treated, we mention it as affording the readers of this journal information about the book to which but very partial justice can be done in the narrow limits of this notice.

In succession, the various ailments to which the rectum and anus are subject, are taken up, carefully and systematically treated, and amply illustrated by cuts and cases. These latter are most aptly introduced, being derived from the whole range of surgical literature, as well as from the experience of the author.

In speaking of stricture of the rectum, Mr. Ball directs attention to the fact that the tape-like form of the feces so constantly referred to in books, is of rather rare occurrence, and adopts the views of Van Buren and Kelsey, that it is only observed when the stricture, in the act of defecation, is extended beyond the anus. Ordinarily, when the seat of stricture is some distance above the anus, that orifice modifies the shape of the discharges, though they are usually in small fragments, owing to the fact that the rectum below the stricture is but partially filled. Our author thinks that this is analogous to the condition of things in stricture of the urethra, where the twisted stream so commonly seen is really caused by the partially collapsed condition of the meatus urinarius, which the flow of urine, impeded by the stricture above, fails to distend fully.

We might go on to pass in review many portions of this book, but enough has been said to show our estimate of it, and further than this it is beyond the scope of this necessarily brief notice. On almost every page will be found evidence of Mr. Ball's personal knowledge, extended

reading, and sound surgical judgment. The book has in it four colored lithographs and fifty-four illustrative woodcuts, and is well written. In short, we may safely commend this little volume as in every way worthy of a school which has ever been prolific in sound and able surgeons.

S. A.

PATHOLOGY AND TREATMENT OF RINGWORM. By GEORGE THIN, M.D. 8vo. pp. 87. London: J. & A. Churchill, 1887.

THE author states that it is his purpose "to describe the nature and peculiarities of the fungus causing the disease, the changes in the skin to which it gives rise, and the treatment most likely to succeed in destroying the parasite and the disease which it causes." The work (the greater part of which first appeared recently in the pages of the *Practitioner*) comes from the pen of one who is favorably known, and from whom we naturally expect thorough research in whatever is undertaken, and in this we are not disappointed in the book before us. It shows both a scientific and a practical spirit, and there is everywhere evidence that the author has made a careful study of the subject.

The first chapter treats of the fungus, and of a series of cultivation experiments, the author especially recommending the meat-gelatine preparation introduced by Koch, which he regards as the least troublesome and the most certain of all methods of cultivating the trichophyton. The habitat of the fungus is stated to be in the hairs, in the substance of the nails, in the horny layers of the epidermis, in the space between the inner root-sheath and the cuticle of the hair. There is no evidence that it exists or grows in the rete mucosum. As Küchenmeister long ago pointed out, it does not grow in living tissues.

Concerning the etiology of the disease, Dr. Thin's experience leads him to believe that ringworm of the head is more common in London than in any other large city. Interesting remarks on the question of contagion follow, especially in connection with the lower animals. We are entirely in accord with the views of the author when he says "the skin of different persons, and different parts of the skin of the same person, vary in their susceptibility for the growth of the fungus. It does not grow, except in extremely rare cases, in the scalp of adults, and it grows more freely in moist parts of the skin than in parts that are dry." Again, we think the author is right when he says, "the common idea that ringworm is associated with want of personal cleanliness is a mistaken one; dirt affords no pabulum for the growth of the trichophyton."

The pathology of the disease is regarded as a specific inflammation, its special characters depending on the effects produced on the blood-vessels of the cutis by the growth of the trichophyton in the horny layers of the epidermis and root-sheaths of the hairs. The histological changes which take place in ringworm of the scalp are fully entered into, the author on a previous occasion having done good work in this direction. Concerning the anatomical seat of the fungus, the views expressed so far back as 1855 by Küchenmeister are maintained, viz., that the parasite can only live and increase in the substance of the hair

itself and in the crusts which are found on the scalp, and that it is never found between the cells of the epidermis. Dr. F. Taylor, of London, holds the same opinion, which is in opposition to that of Dr. A. R. Robinson, of New York, who believes that conidia are even found in the perifollicular tissue.

On the subject of the treatment of ringworm of the scalp, the author's views are conservative and sound, as the following sentence will show: "The many vaunted specifics only too often leave the practitioner in the lurch. I am satisfied that the best way to avoid discouraging results is not to fly from one remedy to another, but to take care that the remedies selected are thoroughly applied." The principle of managing the disease consists in producing in the hair-follicles an inflammation sufficiently acute to lead gradually to the destruction of the fungus without causing destruction of the hair-papillæ. The age and constitution of the patient should be considered and the remedies at first applied tentatively to ascertain the point of toleration. The author's own method of treatment is as follows: In a child, under three years of age, a sulphur ointment, one drachm to the ounce, is first used, gradually increased in strength, if well borne, which remedy (in such a case) if continuously applied will usually lead to a cure. For children of four or five years of age, in addition to sulphur ointment a solution of carbolic acid in glycerine (at first 1 in 8) is prescribed. In a child of seven and older, stronger remedies are usually demanded, of which citrine ointment, properly handled, is one of the most reliable.

The most potent remedy is probably corrosive sublimate, but it must not be forgotten that there is some danger attending its use, and that therefore it should be employed in a weak solution (one to three grains to the ounce), and only over a small area, and the patient carefully watched by the practitioner. The author justly concludes that the disease never warrants the use of remedies which involve the slightest danger to health and life. His own experience does not lead him to speak encouragingly of epilation.

The latter part of the book, the chapters treating of ringworm of the body, "inguinal ringworm" (eczema marginatum), tinea sycosis, and tinea kerion, are short, and, we think, hardly receive the attention due these diseases. In tinea sycosis and tinea kerion there is no mention made of sodium hyposulphite as a lotion (one drachm to the ounce), a mode of treatment (either with or without the use of an ointment, applied subsequently) which we have found to be of unquestionable worth, and a remedy in all ways desirable. There is much in the work that will prove of value to the practitioner, and a perusal of the pages cannot fail to give a clear idea of the disease.

THE DIAGNOSIS AND TREATMENT OF ECZEMA. By TOM ROBINSON, M.D., Physician to St. John's Hospital for Diseases of the Skin. 12mo. pp. 136. London: J. & A. Churchill, 1887.

THE work is divided into chapters treating of the eczematous diathesis; symptoms of eczema; etiology of eczema; the differential diagnosis of

eczema; modifications of eczema; and the treatment of eczema; some of which are considered at length, while others are dismissed rather summarily. As a whole, the work is too brief to do full justice to the subject, more especially as the author inclines to be discursive, and to consider topics which must be regarded as collateral to the disease. The diagnosis and treatment, indeed, receive less consideration than we are led to expect from the title-page, and the book may be described as a running commentary on eczema rather than a systematic treatise.

Here and there we note some original observations, showing that the author is familiar with the subject, but in other places occur singular statements, which, considering their novelty, we think, should have been elaborated. Thus, after stating that "eczema does not leave a scar behind," we note that "the disease which is known as lupus erythematosus is an eczematous process;" and in another place, "there are many reasons for regarding this condition (lupus erythematosus) as an eczema;" and "when erythematosus lupus attacks the scalp it is always associated with a copious oozing of serum." These views, it need hardly be said, are entirely at variance with those of our text-books. Belonging to the same category (on page 46) we read, "the conditions which we know as pruritus ani and pruritus vulvæ are eczematous inflammations," etc. Again, "eczema marginatum is confined to the male sex" (page 47). It may further be mentioned that the author holds the view that pityriasis rubra is merely a form of eczema; and that "very few cases of sycosis run their course without becoming eczematous at some period of their career." Now, as has been intimated, all of those observations are so peculiar as to challenge criticism.

The treatment of the disease is unsatisfactory, because, among other reasons, no mention is made of the many exceedingly valuable remedies and formulæ that are now universally recognized as part of our armamentarium. The omissions are too numerous to cite. The methods, too, of using external remedies, a subject of the utmost importance, do not receive sufficient attention. As a whole, we would say that the book cannot take rank with the several more elaborate and well-known monographs on eczema already before the profession.

DISEASES OF WOMEN. A HANDBOOK FOR PHYSICIAN AND STUDENTS. By DR. F. WINCKEL, Professor of Gynecology and Director of the Royal University Clinic for Women in Munich. AUTHORIZED TRANSLATION by J. H. WILLIAMSON, M.D., Resident Physician Allegheny General Hospital. UNDER THE SUPERVISION AND WITH AN INTRODUCTION by THEOPHILUS PARVIN, M.D., Professor of Obstetrics and Diseases of Women and Children in Jefferson Medical College, Philadelphia. 12mo. pp. xxix., 674. Philadelphia: P. Blakiston, Son & Co., 1887.

AFTER a careful study of this volume, we are prepared to endorse most heartily Professor Parvin's words of commendation. It appears in good season, for there was urgent need of a work for English readers in which the operative side of gynecology was not exalted to the chief place.

Dr. Parvin hits the mark when he says in the introduction that Winckel "gives great importance to gynecological medicine." The same graceful writer, who "has thrown the ægis of his great reputation" over the present translation, sums up in well-chosen language the essential features of the book and prepares us to give it a favorable reception.

Winckel's writings are sufficiently familiar to the German student. Such criticisms as we may offer are for those who for the first time enjoy the pleasure of perusing the present volume in English. It is divided into seven sections, each of which comprises, on an average, six chapters. The natural sequence is adopted. We study first diseases of the external genitals, next those of the vagina and uterus, then those of the tubes and ovaries, and lastly, affections of the periuterine tissues. There is a concluding section on diseases of the breasts.

Although the book at first sight appears to be less extended than many treatises of more imposing dimensions, a careful examination of the separate sections will show that each is in effect a monograph on the subject of which it treats, condensed, it is true, but with few important details omitted. Many of Winckel's short paragraphs contain in themselves an amount of information which may readily be expanded into pages. He needs to be studied, not simply read. The subject-matter is so compressed that it does not form light reading. The charm in his writings lies quite as much in the suggestion of reserve, as of expended, power. This applies particularly to the paragraphs on pathological anatomy, which, though often brief and dogmatic, are amply supported by statistics and by cases from the author's own experience.

The thorough manner in which each subject is treated will appear by reference to the introductory sections on diseases of the external genitals and vagina, which are usually dismissed briefly by writers on gynecology. Not so with Winckel. He devotes 130 pages to the vagina, a long chapter being allotted to malformations. The subject of vaginal cysts, which receives only a passing mention in most text-books, is fully treated (pages 146–153). The same remark applies to neoplasms of this canal.

Section III., on the uterus, is introduced by an exhaustive chapter on malformations. Chapter II., on displacements, comprises nearly a hundred pages, and well repays careful study, especially the subject of peri- and retro-uterine adhesions, on which the author is an acknowledged authority. His remarks on the forcible separation of such adhesions, according to Schultze's method (page 331), are characterized by the admirable conservatism that pervades all the pages devoted to gynecological manipulations.

The following hundred pages (Chapter III.) treat of neoplasms of the uterus, and, as might be supposed, the portion devoted to pathological anatomy is especially satisfactory. Extirpation of the uterus for cancer is discussed at length, and the reader may profitably refer to this chapter for a fair account of the present status of the operation. The paragraph on the treatment of fibromyomata (page 424) contains the gist of the author's creed with regard to surgical gynecology—"We should not show what we can do, but do that which is for the best."

In no other English work on diseases of women do we meet with such scholarly articles on diseases of the tubes and ovaries. In spite of the absorbing interest with which this subject has been invested of late years, the recent editions of our own text-books give but little space to the

pathology of these affections. The present translation supplies this want for English readers.

Section IV., on diseases of the tubes, is based on the author's own observations. Beginning with anomalies of shape and size, and displacements (Chapters I. and II.), he next discusses neoplasms, then inflammation and tuberculosis. Condensed as the matter is, by comparing these chapters with Hennig's monograph it will be evident that nothing has been overlooked. Diseases of the ovaries are similarly treated, the pathology receiving most attention. The paragraph on the treatment of oöphoritis is a most important one, pointing out, as it does, the vital objection to removal of the ovaries for the relief of pain. Winckel is practically ahead of the age; gynecologists will yet come to acknowledge the strength of his position. He speaks in no uncertain tone, in referring to Hegar's statement of the conditions under which oöphorectomy is justifiable. "I cannot," he says, "accept these indications. I consider every castration for the removal of ovaries which are not obviously diseased to be a mistake." Remember that it is a German who writes thus, one of a class whose members we sometimes criticise for their heroic, and, from our standpoint, unjustifiable, surgical procedures.

Want of space forbids our dilating upon the minor excellences of this scholarly work. If the reader attempts to go through it systematically, he will probably soon throw it aside as being dry and uninteresting. But, let him study each section by itself, and regard the whole as a book of reference, and he will find that its merits grow upon him. Only then will he appreciate the amount of practical experience and research, the results of which have been condensed within its pages.

While it cannot be denied that there is sometimes an unevenness as regards the relative amount of space allotted to pathology, symptomatology, and treatment, it must be remembered that the author's tastes are naturally in the direction of anatomy, and, therefore, the brevity of his remarks on treatment may be excused. The absence of detailed descriptions of operations, and of the usual diagrams illustrating them, will be noted as a serious defect; but it must not be forgotten that this is hardly a book for beginners. The translator has rendered the original into smooth, readable English, notably free from foreign idioms.

H. C. C.

PRACTITIONERS' HANDBOOK OF DISEASES OF THE EAR AND NASOPHARYNX. (Third Edition of the "Aural Surgery.") By H. MCNAUGHTON JONES, M.D., M.Ch., M.A.O. (Hon.), Fellow of the Royal Colleges of Surgeons of Ireland and Edinburgh. 8vo. pp. 176. London: J. & A. Churchill, 1887.

THIS very interesting handbook is divided into nineteen chapters, and mentions nearly all subjects of importance to a general practitioner, and also contains much to attract the attention of the special surgeon. The introduction deals chiefly with the inexcusable neglect of the study of otology among practitioners of medicine. As an inducement to the medical student to study otology, Dr. Jones advocates that the suggestion of the committee of the Otological Section of the British Medical Asso-

ciation be adopted, viz.: "That the licensing bodies include otology among the subjects for examination."

Chapter II. is mostly statistical, while Chapter III. is of greater interest and value to those to whom the book is addressed. This treats of the etiology of ear diseases. Nasopharyngeal catarrh is tabulated as the chief factor in aural diseases. Sea-bathing, especially, may affect the ears, from the entrance of cold water into the auditory canal, and as a guard against this, the so-called protectors of Dr. Ward Cousins are recommended, and also those of the author. The latter kind are made of celluloid, of different sizes, and fit like stoppers into the meatus.

Struma and syphilis have their share in producing aural complications in children. The latter disease is often overlooked. However, the author has not had Hinton's experience (Guy's Hospital) that one-twentieth of all cases of ear disease are caused by hereditary syphilis. Uræmia, Bright's disease, menstrual disturbances, cardiac lesions, continued fevers, and gout, all have influence in producing or promoting aural disease.

The anatomical plates in Chapter V. are excellent in execution, and most instructive in their delineations. The physiological discussion in this same chapter is devoted chiefly to the Eustachian tube. The next chapter is quite a long one, and is devoted to symptomatology. The diagnosis and means of examination in aural maladies are alluded to very thoroughly in the seventh chapter. The figures of instruments are numerous, and for the most part portray valuable implements. Some, however, are antiquated, and have been superseded by much better ones—at least in Germany and this country. No aural instrument in the same axis as the handle—*i. e.*, no straight instrument—is as good as one set at an angle of forty-five degrees to the handle. In this respect the instruments figured in our author's book are open to criticism. That modern improvements are fully appreciated by the author, is shown by the figure of an electric head lamp for examining the ear. It is called in this work the photophore for the forehead.

Chapter X. contains many valuable hints upon hygiene of the nasopharynx, especially as to the importance of dressing warmly at night in winter time, and also of sleeping in comfortable rooms.

In Chapter XI. the affections of the external ear are considered. Eczema of the auricle and erysipelas of the meatus of the ear, otitis externa, both acute and chronic, furuncle and abscess, recurrent abscess of the meatus and abnormal conditions of the cerumen, are fully explained and their treatment laid out. The diseases of the external ear are further considered in the next chapter (XII.) under the heads of polypi, hyperostosis, exostosis, atresia, foreign bodies, aspergillus, and othæmatoma. A rather tautological nomenclature for polypi, is given in the statement that "they are either mucous, fibrous, or myxomatous." Great caution, with much other good advice, is given for the removal of foreign bodies from the ear. Othæmatoma is considered a disease peculiar to the insane. In the thirteenth chapter the "nasopharynx in relation to deafness," is very fully considered. The principal causes of *acute* nasal catarrh may be given as "exposure to cold, sudden vicissitudes of temperature, season of the year, the nervous and rheumatic temperaments, cold extremities, change of clothing, and bodily fatigue." *Chronic* nasal catarrh is due to recurrent attacks of the acute or subacute forms, to nasal and post-nasal growths, to temperament, syphilis, and polypus. The author has used cocaine spray (four to ten per cent.) "with marked benefit in con-

gested and catarrhal states of the mucous membrane, and in chronic hypertrophic conditions of the pituitary bones."

Hypertrophy of the tonsils, spoken of in the fourteenth chapter, is, in the author's opinion, best treated by excision or amputation, rather than by the modern method of cleaning out the plugged crypts, and excising only the hypertrophied fibrous stroma. In our opinion, the *glandular* structure should be spared as far as possible from the guillotine. Adenoid growths in the nasopharynx, their symptoms and treatment, receive due attention. Various instruments and affections of the nasopharynx are figured, but we fail to find either due prominence given to chronic hypertrophies of the turbinated bodies, or any mention of the very efficient instrument for their removal, viz., Jarvis's snare.

Simple acute catarrh, simple chronic catarrh, and acute suppurative catarrh, are next considered. Under the latter head, the author speaks of the possible necessity of opening the mastoid. But how this could arise in an acute case we are at a loss to see. Such a contingency could only arise in an acute process in an ear previously chronically diseased by purulent processes. But the rarity of the occasion when this operation of opening the mastoid cavity could be considered by a fair judgment to be a vital indication, is so very great that it hardly deserves a place in a book for the use of general practitioners. Many specialists see only very seldom a demand for this operation.

Chapter XVI. is, nevertheless, given up to the consideration of mastoid inflammation, and opening or trephining this part of the temporal bone. The author, however, is not over-swift to perform this operation, and lays down good rules to be followed in such cases.

In the next chapter, the seventeenth, tinnitus aurium and aural vertigo are carefully considered. The author is to be congratulated in the choice of the term "aural vertigo"—rather than the restricted and misleading term, "Ménière's disease." The latter receives just notice as subordinate to the more general term, aural vertigo. The treatment laid down for this malady is most rational. The location of the lesion in the ear, productive of vertigo, is first to be sought, then the treatment follows most rationally. The mistake heretofore has been to refer all such cases to nerve lesions.

The book ends with an interesting consideration of the deaf-mute. No general practitioner can fail to receive much instruction by reading this well-printed and well-written book, offered to him by a thoughtful author.

C. H. B.

DIFFERENTIAL DIAGNOSIS OF THE DISEASES OF THE SKIN, FOR STUDENTS AND PRACTITIONERS. By CONDICT W. CUTLER, M.S., M.D., Assistant Attending Physician for Skin and Venereal Diseases at the New York Hospital Out-door Department. 12mo. pp. vi., 139. New York and London: G. P. Putnam's Sons, 1887.

IN the little book before us the author has arranged in tabular form the characteristic features of such skin diseases as are liable to be confounded one with another, so that their diagnosis may be simplified. The

task is by no means an easy one, for in dealing with the subject in this form, and within the compass of a small book, everything must give way to condensation, often at the expense of accuracy and facts. When statements are presented dogmatically and in strong antithesis, and where they are, as it were, made to adapt themselves to circumstances, one naturally finds much to question and criticise, and such is the case in the volume before us. Some of the definitions of the lesions, for example, are too curt to give a correct idea of the subject; thus, a papule is described as "a circumscribed solid elevation of the skin," nothing being said as to other characteristics, as, for example, size. Dubious statements, or at least such as tend to give a wrong impression, often because of their brevity, are not infrequent. The very character of the book, that of extreme condensation and dogmatic dicta without qualification, entails such faults. The work, however, will prove an aid to the busy practitioner who desires points in diagnosis without being obliged to study the subject; it will prove more useful to the graduate than to the student.

MANUAL OF CLINICAL DIAGNOSIS. By DR. OTTO SEIFERT, Privat-docent in Würzburg, and FRIEDRICH MÜLLER, Assistant der II. Med. Klinik in Berlin. Third Edition, Revised and Corrected by DR. FRIEDRICH MÜLLER. Translated, with the permission of the Author, by WILLIAM BUCKINGHAM CANFIELD, A.M., M.D. (Berlin); Fellow of the American Academy of Medicine, etc. With sixty illustrations. New York and London: G. P. Putnam's Sons, 1887.

THE first chapter of this excellent little book is on a subject which is beginning to receive the importance it deserves—the examination of the blood. Nothing could be more appropriate, or, to use a much-abused term, more practical. While the directions for such examination are not full enough to supply every want, they are very suggestive, and will lead the student to consult more elaborate works on the blood.

The fourteen chapters of the work are very concise, as is evidenced by the fact, that, excluding an elaborate dose-table and index, it contains only 143 pages. Each chapter is well up with the times. Those on the digestive and nervous systems are of particular interest. Under the former head, directions are given for examining the contents of the stomach. Late researches have shown that valuable diagnostic information may be gained by such examination. Under the head of the various so-called tendon reflexes, that of the lower jaw, discovered by Dr. Morris Lewis, is not mentioned. Unlike most translators, Dr. Canfield, who has done his work well, has withheld his hand from any attempt at emendation.

The manual is one of a kind that should be thoroughly mastered by the under-graduate, and often consulted by the practitioner.

F. P. H.

PROGRESS

OF

MEDICAL SCIENCE.

THERAPEUTICS.

UNDER THE CHARGE OF

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The Treatment of Chorea by Antipyrin.

In a communication that recently appeared (*Revue de Thérapeutique*, Jan. 15, 1888) M. Legroux gives the results obtained from the use of antipyrin in chorea. By the treatment hitherto pursued, the average duration of the cases of chorea has been sixty days according to MM. Sée and Rogers, and ninety days according to Cadet de Gassicourt, but in the treatment by antipyrin Legroux finds that the average duration is about sixteen days, the minimum being six, and the maximum twenty-seven days.

The mode of administering antipyrin is simple. In twenty grammes (about six drachms) of syrup of bitter orange (French codex) he dissolves one gramme (fifteen and a half grains) of purified antipyrin. Three doses of this size are given in the course of twenty-four hours.

Antipyrin as a Hæmostatic.

Olikhow (*Bull. Gén. de Thérap.*, Jan. 15, 1888) reports the successful employment of antipyrin by inhalation in hæmoptysis. The solution used by him is in the proportion of four to fourteen, this having proved to be the most effective. These figures are the more satisfactory in that the cases thus treated had been under the ordinary management without success.

The Antipyretic Effects of Ice applied to the Cardiac Region.

Walter, at the clinic, and under the supervision of Menassein (*Bull. Gén. de Thérap.*, Jan. 15, 1888), has tried the application of ice to the cardiac region as a therapeutical expedient, with results in many respects interesting and important. This application of ice does not much affect the heat of the body in general, but at the point of application the temperature is much lowered. The character of the febrile pulse is changed. The systolic impulse is at first

lessened, but the dicrotism is not much affected. After a time, however, the systolic impulse increases greatly in force. The ascension line of the pulse trace becomes more oblique, and rises higher, and the declension line is lengthened, the dicrotism disappearing. When the ice is removed, the previous character and quality of the pulse return.

It is to be remarked, says our author, that the same effects are produced in pneumonia by the application of ice. In an epidemic of pneumonia occurring amongst the soldiers of a garrison town, he abstained from the use of ice in cases characterized by active reaction. When, however, hyperpyrexia came on with feeble pulse, application of ice to the cardiac region had good effects in the way of lessened fever heat, slowing of pulse and respiration, and, consequently, improvement in the patient's condition.

The conclusion arrived at after sufficient clinical experience, is that the application of ice to the cardiac region is a powerful expedient, adapted to the treatment of the more serious cases of fever, to increase the power of the heart and restore its regularity of action.

The mode of applying ice is not described with particularity, but we gather from the article that it is contained in glass vessels. "I leave the vessel of ice," says the author, "in position for twenty-four to forty-eight hours, according to the case, and up to the crisis" (of pneumonia).

A Successful Treatment of Hydrophobia.

Dr. Kichensky, in an elaborate study, from the clinical side, of 693 cases occurring in the hospital at Moscow, reports a case in which success followed a peculiar treatment (quoted in the *Bull. Gén. de Thérapeutique*, January 15, 1888).

A woman, aged thirty-five, was bitten by a mad dog five weeks before her admission to the hospital. She presented all of the usual symptoms of the disease in their most typical form. She was placed in a warm bath, where she was bled to syncope, losing fourteen ounces. During the two following days she was given ten grammes (160 grains) of powdered belladonna leaves. On the third day the hydrophobia disappeared.

The Effects of Acetanilide (Antifebrin) in Febrile Diseases.

Dr. Ademski (*Wratsch*, 1887, No. 25; quoted by *Bull. Gén. de Thérap.*, January 15, 1888) narrates his experiences with acetanilide in various febrile diseases. Amongst them there were 4 of typhoid, 3 of acute rheumatism, 2 of pleuro-pneumonia, and 1 each of intermittent pleurisy, phthisis, and erysipelas. Not all patients bore the remedy well, and in one case of acute rheumatism a dose of sixty centigrammes (ten grains) brought on symptoms of collapse. The temperature was invariably lowered. A dose of two grains every hour rapidly lowered the fever heat. The pulse is lowered from ten to thirty beats per minute, and the respirations may be brought down from 26 to 14. Sweating was a constant result. In large doses acetanilide induces hypnotic effects, and in such cases as acute rheumatism and erysipelas, manifests an anodyne action. Diuresis was a symptom in the majority of cases. The urea was lessened, but the total output of nitrates was increased: the

phosphates, the chlorides, and the sulphates were diminished in quantity. The diuresis for the most part consisted, therefore, in a mere increase of the urinary water.

Subcutaneous Injection of Mercury in the Treatment of Syphilis.

Increasing experience confirms the late estimates of the value of the insoluble mercurials in the treatment of syphilis. Now comes Prochorow (*Ibid.*) with cases showing the curative power of metallic mercury when injected subcutaneously. He injects three to four times a week, eight to ten grains of metallic mercury in those who have had no other treatment. In most of the cases water baths were also used.

Prochorow suggests in explanation of the utility of the practice, that the mercury in minute globules remains for some time without chemical change. The baths, by dilating the vessels, promote the distribution of the mercury through the tissues. He finds that under this treatment syphilis of recent origin disappears in from three to six weeks. In old cases, he has found that the injection of thirty grains gives very good results.

The operative procedure is as follows: In a syringe (which must not be of metal) he takes up fifteen grains of mercury, and then fills the instrument with distilled water. Reversing the syringe that the water may go first, the injection is made in the ordinary way.

The Treatment of Aneurism.

The January issue of the *Therapeutische Monatshefte*, of Liebreich, contains a paper by Dr. Scheele on the various modes of treating aneurism. The object of the paper appears to be didactic and critical rather than experimental and clinical—to inform the readers of the journal about the present state of knowledge of the subject. Our readers, we believe, will be no less pleased to have placed before them a comprehensive view of the therapeutics of aneurism.

Dr. Scheele classes the remedies in three groups: dietetic; medicinal; mechanical or surgical.

As regards the dietetic, Tufnell's method is the chief. The low diet and the rest increase the blood pressure of peripheral source, lessen the number and the force of the cardiac contractions, and greatly increase the relative proportion of the fibrin of the blood—the effect of these agencies being to favor coagulation in the aneurismal sac, and organization of the fibrin. Successful cases have been reported by Tufnell, Bellingham, Findlay and others. Von Harris has collected 13 cases up to 1882, and of these 6 were reported as much improved. MacKellar (*Lancet*, 1882) has published an account of a case spontaneously cured under conditions that, in practical action, correspond to Tufnell's method. It was a sacciform aneurism of the cœliac axis, which became consolidated during an attack of chronic dysentery that ultimately proved fatal.

Of the purely medicinal agents used, Dr. Scheele considers the various medicaments that act on the vessels and favor coagulation of the blood in the aneurismal sac by raising the peripheral tension. The most striking instance of cure is the case narrated by Flint, of England, in which this result was

achieved by chloride of barium, one-fifth to one-third grain in pill three times a day. It is remarkable that a remedy possessed of the powers of barium should be dropped from the official list. Such is the fact. In vain may the Pharmacopœia of 1880 be inspected.

Digitalis is spoken of with favor in the cases of aneurism accompanied by mitral incompetence and dilated right cavities. The most useful of these dynamical remedies is ergot, especially as employed by subcutaneous injection according to the method of Langenbeck.

Dr. Scheele commends especially the utility of iodide of potassium in massive doses, according to the plan of Bouillaud and Balfour. At first, merely empirically used, its mode of action is now being established on a physiological basis by the researches of Nothnagel, Rossbach, and Kobert. It seems to be clear that the iodides have an action on the blood, increasing its coagulability, and on the vessels, lessening the calibre of the arterioles, which has the effect to raise the tension and slow the beats.

We will not follow our author in his account of the surgical or mechanical treatment; but *apropos* of an abstract given above, we call attention to the use of ice in the treatment of aneurism. Dr. Scheele finds the secret of its utility in the effects of ice on the vessels, and in slowing the heart. Our readers can compare the observations made independently, and ascertain the manner in which the physiological actions procure therapeutical effects.

Naphthol.

The following is recommended by Kaposi in the treatment of scabies:

Adipis	100	parts.
Sapo viridis	50	"
Naphthalin.	15	"
Cret. alb. pulv.	10	" M.

The same has been used in acne with success.

MEDICINE.

UNDER THE CHARGE OF

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The Treatment of Articular Rheumatism.

Aufrecht (*Deutsche med. Wochenschrift*, Jan. 12, 1888, p. 23) has had an interesting experience in the treatment of rheumatism. As the result of extensive trials he came to use salicylic acid in acute cases to the exclusion of

all other remedies, and with complete success so far as the disease was concerned. He used the acid in full doses, 90 grains pro die for the first two or three days, and 60–45 gr. pro die during the following eight or ten days.

Unfortunately this treatment could not be fully carried out in every case. Burning pain in the stomach, vomiting, tinnitus aurium, or dyspnœa sometimes made the drug unbearable. The use of salicylate of soda in corresponding doses was no improvement. Not only did it cause the same disagreeable symptoms as the acid, but in Aufrecht's hands was not as effective in subduing pain and fever.

On the introduction of salol, a trial of it showed a marked improvement in many respects. Causing but little local or general disturbance, its use could be continued almost indefinitely. Thus, one patient of Aufrecht's took altogether more than 3500 grains in doses of 90 grains daily. On the other hand, in acute polyarthritic cases it was not so effective as salicylic acid. Whereas the latter usually subdues pain and fever in the first twenty-four hours, salol requires three or four days, though pain was greatly ameliorated within the shorter period.

In consequence of its many advantages salol was adopted as the routine treatment by Aufrecht, but on the occurrence of a fatal case of acute endocarditis under its use—a thing not met with among 600 cases treated by salicylic acid—it was discontinued. Since then what might be called the mixed treatment has been followed. In this, acute cases receive during each of the first two days 90 grains of the acid, after that the same amount of salol. Later, the patient still remaining in bed, the salol is reduced to 60 grains daily. As salicylic acid is usually well borne for two days, but frequently no longer, this recommends itself as the best routine treatment. If possible, the acid can be continued; if, on the other hand, it can not be taken, salol alone may be used.

In chronic articular rheumatism salol is perferable in every respect, not only avoiding the dangers attending prolonged use of salicylic acid, but offering more positive assurance of cure.

Pleural Exudate containing an Indigo-forming Substance.

The following unique observation is recorded by Paul Guttmann (*Deutsche med. Wochenschrift*, Dec. 22, 1887): On tapping a case of chronic pleurisy with sero-fibrinous exudate, the fluid presented, shortly after removal, a peculiar greenish-blue shimmer. This led to its careful filtration and further preservation. The color gradually became more intense, and after a few days was dark blue—so intense, that when diluted in the proportion of one to ten it was still quite blue. This color, as was proven by exhaustive tests, resulted from the presence of indigo-blue. Culture experiments proved the absence of microörganisms in the fluid.

Guttmann remarks that this is the first time an indigo-making substance has been found in a pleural exudate.

Beside its occurrence in the urine, one case has been recorded (Bizio, *Sopra la presenza dell indaco nel sudore. Sitzungsbericht der Wiener Akad. der Wissensch.*, 39 Bd., Jahrg. 1860, S. 33–40) in which it was deposited as a blue precipitate on the scrotum from the perspiration. It is quite possible that its occurrence would be noted oftener if exudates were preserved longer, as the color de-

velops slowly, and it is hoped this communication will lead physicians to look for it.

In commenting on the above case in the Berlin *Verein für innere Medicin* (loc. cit.), EHRLICH called attention to the great theoretical importance of the observation. Since bacteria are absent, he said, it must be supposed that the pleura itself produced the indigo-white.

This latter substance is remarkable for its strong affinity for oxygen. Where it is formed, no free oxygen can be present, and, moreover, the parts producing this substance must be in the highest degree reducing agents. This confirms some assertions made long ago by the reporter, claiming for the lung tissue decided reducing properties. As this did not agree with prevailing theories of the pulmonary function, his assertions were doubted. Recently, Boehm has made some experiments which go to prove that the lungs act not only mechanically, as in the gaseous interchange, but also like secreting organs, and from this latter fact the reducing power of the pulmonary tissue is easily explained.

CREASOTE IN THE TREATMENT OF LARYNGEAL AND PULMONARY PHTHISIS.

From the present great interest in the treatment of phthisis and the restless search for new remedies or modes of cure, some remarks by HOFMANN (*Berliner klin. Wochenschrift*, Dec. 26, 1887, p. 985) may be cited with profit. This author cordially agrees with the statement of Sommerbrodt (*Ib.*, 1887, Nos. 15 and 48) that the beneficial action of creasote in phthisis is in direct proportion to the amount used. In place of the usual wine and creasote, and the unpleasant combination with cod-liver oil, Hofmann has used during eight years a mixture of the drug with tincture of gentian in the proportion of one to two. Beginning with ten drops three times daily, the dose is run up rapidly to twenty, twenty-five, or even thirty drops. Short interruptions were allowed, and this remedy was universally well borne and exhibited no toxic effects.

In cases of laryngeal phthisis in addition to the creasote internally, nitrate of silver was used locally in substance with the best results.

Even in advanced cases the treatment was carried out, not so much in the hope of curing as for the reason that it seemed equal to any other in alleviating the symptoms of the later stages. Even in such cases real benefit often followed.

Contrary to expectation, in intestinal tuberculosis and the diarrhœas referred to it, creasote was of no benefit. In general miliary tuberculosis it is useless, and the forms of disease most benefited have been those with hemorrhages, or with caseous or fibroid degeneration. During actual hæmoptysis the use of the remedy is suspended. The author thinks the most decided value of the treatment results from improvement of the gastric and intestinal digestion, the immediate cause of which he leaves undecided.

The rapid improvement of appetite and assimilation soon appears manifest in increased weight and renewed vigor, and through the latter the patient is rendered more capable of withstanding fresh inroads of disease.

So evident was the effect on the alimentary tract that the author was led to

use creasote with benefit in ordinary cases of dyspepsia and gastric catarrh. In bronchitis of children it was used with satisfaction, and the recommendation of Sommerbrodt to apply it in cases of enlarged glands and eczema was followed with advantage.

Though the use of the mixture, as given above, often causes coughing and hawking, it seems, on the whole, preferable to capsules, evidently for the reason that the latter cause a greater local irritation where they are dissolved, and the local action in the mouth, throat, and œsophagus is highly desirable.

In view of the very favorable results of Hofmann, it is to be hoped the hesitation to use creasote in full doses will be overcome, and that it may receive what its advocates claim it deserves, a thorough, long-continued trial.

Cardiocentesis.

Puncture of one of the cardiac cavities in states of extreme dilatation was advocated and practised by Westbrook, of Brooklyn, in 1882. J. B. Roberts and Leuf have urged the adoption of the method in suitable cases, and it has now been performed, accidentally or by design, in a number of cases by Dana, Corwin, Moorman, Cheeseman, and others.

In *Le Progrès Médical*, 1887, Nos. 4, 9, 50, 51, and 53, Dr. Bruhl discusses the subject at great length and analyzes carefully the American observations. The tone of the review is favorable to the operation, and the following conclusions are drawn:

Cardiocentesis is a practicable operation, in the majority of cases not dangerous, and may be performed for the relief of dilatation of the right heart not dependent upon organic disease.

Aspiration facilitates the operation.

The auricle or the ventricle may be punctured.

To puncture the right auricle the needle is inserted in the third right interspace at the sternal margin, and thrust directly backward.

To puncture the right ventricle the needle is inserted in the fourth left interspace at the sternal margin.

Aspiration of the ventricle is preferable, as there is less likelihood of the production of hæmopericardium.

Cardiocentesis is practically venesection of the lesser circulation, and also acts as a mechanical excitant of the heart.

The observations are not yet numerous enough to formulate a definite judgment on the operation, which is, however, *a possible one, not to be rejected on à priori grounds.*

The operation is of doubtful utility and not without its dangers, as in a case of Dacre's the aorta was punctured, and in at least one case fatal hæmopericardium followed. In a case of non-valvular hypertrophy and dilatation of the heart which was discharged from my wards at the Philadelphia Hospital, the patient was readmitted by accident to the surgical ward in a state of extreme cyanosis. The resident surgeon punctured the heart with a hypodermatic needle. At the autopsy the pericardium contained a couple of ounces of blood, which had come from a puncture in the anterior coronary vein. Watson, of Jersey City, has advocated puncture of the heart in chloroform narcosis, to stimulate the fibres mechanically, but in this procedure there

is not only the danger of hemorrhage, but it is quite possible that Kronecker's coördination centre—which in the dog occupies the lower part of the upper third of the ventricular septum—might be touched, in which case immediate death would follow.

In puncturing the right auricle it is well to bear in mind that this cavity is not always reached by a needle thrust in close to the sternal margin at the third right interspace. In five bodies, recently, a needle so inserted entered the appendix in two cases, in one close to the fringed edge; in one case the auriculo-ventricular groove was punctured, and in two the needle entered the base of the right ventricle. With a greatly distended right auricle it might be safer to puncture outside the line of the internal mammary artery—say an inch and a quarter from the sternal margin—and carry the needle downward and toward the left.

Endarteritis Deformans as a Cause of Sudden Death.

Key-Aberg has made an analytical study of sudden death from the point of view of medical jurisprudence (*Nordiskt med. Archiv*, Bd. xix., Nos. 11 and 15). The work is divided into three parts. The first, forming as it were an introduction, treats of the various conceptions of sudden death entertained respectively by the physiologist, pathologist, and medical jurist. It emphasizes the necessity for the latter to comprehend, to the greatest extent, all the anatomical alterations which experience shows are capable of suddenly terminating life. The section ends with an historical review of the statistics up to the time of Ferrario (1834).

In the following section the author examines statistically the importance of chronic endarteritis (endarteriitis chronica deformans, Virchow) as a cause of sudden death. The basis of the material for this part of the work was derived from the medico-legal laboratory in Vienna, 852 of the cases analyzed being those of sudden death in persons over the age of fourteen years, examined in that city between June 1, 1881, and June 1, 1886. Though it might be urged that local conditions play too large a part in such statistics, it is probable they do not materially alter the results attained.

The following represent the more important conclusions of the section under consideration:

1. In 74.5 per cent. of all cases of sudden death from natural causes, the fatal result is due to chronic endarteritis, or one of its sequences.

2. In the deaths named, these sequences are, with rare exceptions, one or other of the following: Paralysis of the heart, rupture of the heart, rupture of aneurism of aorta or one of its extracranial branches, rupture of the aorta (including dissecting aneurism), or intracranial hemorrhage. (Out of 635 cases, only one was caused by embolism of the cerebral arteries, all the others were due to the causes enumerated.)

3. Of the lethal causes named, cardiac paralysis formed 71.1 per cent.; rupture of the heart, 2.4 per cent.; rupture of aneurism of aorta, etc., 8.7 per cent.; rupture of aorta, 2.5 per cent.; intracranial hemorrhage, 13.3 per cent.

4. Of *all* cases of sudden death from natural causes in persons above the age of fourteen years, the cause was paralysis of the heart in 52.9 per cent.;

ruputure of heart, 1.7 per cent.; rupture of aneurism of aorta, etc., 6.4 per cent.; rupture of aorta, 1.9 per cent.; intracranial hemorrhage, 11.3 per cent.

5. Among the cases of chronic endarteritis, males formed a decided majority. This was especially marked in paralysis of the heart (64.5 per cent. males) and rupture of aortic aneurism (males about 79 per cent.).

6. In the cases just mentioned, senility does not seem to be an important factor, since a majority occurred between the ages of forty and forty-four.

7. In general, men dying of paralysis of the heart are younger than women dying from the same cause, the same probably holds good for aneurism of the aorta. It would seem, therefore, as if chronic endarteritis develops more rapidly, and progresses with greater energy in men than in women.

8. Social position and profession appear to be without influence on the question of etiology.

9. More cases of paralysis of the heart occur during the first three and last three months of the year, than during the other six months. Most of the cases of death from this cause occur in winter.

10. In general, deaths from chronic endarteritis are most frequent in winter; then follow autumn, and with about equal frequency, spring and summer.

The last section is devoted to a study of endarteritis deformans in the coronary arteries and their orifices in the aorta, as a cause of cardiac paralysis. In calling attention to the importance of such an investigation, the author shows that out of thirty-three cases of cardiac paralysis due to endarteritis, he found in twenty-two arterio-sclerotic changes in the vessels named quite sufficient to prove a causal relation.

The author describes in detail the results of thirteen autopsies, in which death was considered due to cardiac paralysis brought about by sclerosis of the coronary arteries. What is of special importance, according to the author, is that he arrived at results directly opposed to the opinions generally adopted, so far as fatty degeneration of the heart was concerned. In only two out of the thirteen was there fatty degeneration involving a large area. Necrotic softening was, apparently, the principal change observed.

The Mutual Relation between the Saliva and the Gastric Juice.

George Sticker (Volkmann's *Sammlung kl. Vorträge*, No. 297) has made some investigations on the action of saliva which tend to alter materially our ideas of stomach digestion.

The view thus far held has been that the saliva exerts its amylolytic action until the increasing secretion of acid gastric juice checks it, and that then the peptonizing of albuminoids begins. Sticker has come to opposite conclusions.

According to him, the importance of saliva lies in the fact that absence of it causes a decrease or total failure of secretion of gastric juice, and that want of saliva causes not only abolition of amylolytic action, but also influences essentially the gastric proteolysis.

The basis of this investigation was furnished by a patient who had no salivary secretion. Examination of the gastric contents showed not only diminution of amyloid, but also of proteid, digestion, consequently diminished secretion of gastric juice. Administration of jaborandi not only reëstablished

the saliva, but caused a return of the normal gastric secretion, so that in two weeks the patient had entirely recovered.

Since the jaborandi could not have affected the stomach directly, it may be assumed that the secretion of saliva, and its introduction into the stomach, excited the latter to activity.

This view is confirmed by an experiment made by Sticker to that end. Egg-albumin and starch were introduced into the stomach and allowed to remain two hours, in one case avoiding swallowing saliva, in another allowing it to mix in the normal manner with the contents of the stomach.

In the latter case the stomach was found empty, in the former undigested starch and albumen were found and the gastric juice possessed but slight peptonizing power.—*Fortschritte der Medicin*, No. 2, 1888.

The Chlorides in Urine in Gastric Disease.

As bearing on the much discussed question of hydrochloric acid in gastric diseases, and the relation of the urine chlorides to hyperacid vomiting (see American Journal of the Medical Sciences for December, 1887, and January and February, 1888), the following conclusions of Gluzinski may be read with advantage (*Berliner kl. Wochenschrift*, No. 52, December 26, 1887, p. 983):

From the examination of the urine in a great number of cases of gastric disease, it may be affirmed that a decrease in the amount of chlorides occurs under the following conditions:

1. When the amount of chlorides received into the system is too small, as in inanition, or continued vomiting after eating.

2. When, notwithstanding sufficient ingestion, the absorption of chlorides is affected. This occurs in the severe dilatation following carcinomatous stenosis of the pylorus.

3. In cases where there is an excessive secretion of gastric juice, but only then, when the excess is removed by vomiting or repeated artificial aspiration, or when the mucous membrane is unable to absorb it, as happens in marked genuine dilatation or that caused by cicatrices.

Finally, other things being equal, marked decrease or disappearance of chlorides in urine speaks rather for a benign process, with excessive secretion of hydrochloric acid, than for a malignant new-growth.

Albuminuria of the Healthy.

In view of all that has been published in late years on the significance of traces of albumin in the urine of persons to all appearance healthy—so-called physiological albuminuria—the investigations of Grainger Stewart on this subject, communicated by him to the Edinburgh Royal Society, are instructive. He found albumin present in 31 per cent. of the urines from 407 healthy persons. The individuals under observation were engaged in a variety of pursuits, but it is to be observed that nearly all were of the poor class, living in unhygienic circumstances. Thus, in 40 children, of one of the city poor-houses, 17.5 per cent. had albumin, and of 40 male inmates, 67.5 per cent. Observations regarding the influence of food or exercise show that after breakfast the percentage of those in which albumin occurred was greater

than in the same number before the meal, it being in most instances, indeed, nearly doubled. Moderate exercise, on the other hand, diminished the percentage: soldiers after a march, for instance, showing a decrease in the number having albumin. Fatiguing exercise increased the percentage, likewise cold bathing.

From his observations Professor Stewart concludes that albumin may be eliminated from the healthy kidney, and is not in itself a sign of disease; and that, therefore, the presence of albumin in the urine is in itself not a sufficient cause for rejecting an applicant for life insurance.

Before accepting these deductions further observations are necessary, and especially observations upon a large number of individuals living amid favorable surroundings.

Pulsating Spleen.

Prior reports (*Münch. med. Woch.*, 1887, No. 45) two new cases of pulsating spleen. One was in the case of a typhoid fever patient with aortic insufficiency, the other a man of thirty-seven years, with functional (strain) hypertrophy of left ventricle, in hospital for pneumonia.

Prior accepts Gerhardt's explanation of the genesis of such cases, which is, in short, as follows: In addition to the hyperæmia of the organ and the relaxation of the vessel walls from fever, there is a hypertrophic, energetically acting left ventricle.

The Connection between Obesity and Diabetes.

In the *Berliner klin. Wochenschrift*, 1887, No. 46, Prof. Kisch, of Prag-Marienbad, has an interesting article in which he endeavors to show the close relation between obesity and diabetes mellitus.

Seegen (*Beiträge, Virchow's Arch.*, Bd. 30) showed the frequent development of diabetes in obese persons, 30 out of 100, according to his analysis, having been excessively fat in the beginning of, or prior to, the glycosuria. Nevertheless, the fatty habit has always been looked on as an uncertain etiological factor.

Kisch affirms that in general obesity there is frequently temporary glycosuria, in some cases of which sugar is present in the urine in large amounts. The duration may be long or short, and the patient not sensibly affected. Still, such a condition must be looked on as unfavorable. The glycosuria sometimes becomes permanent, so that the temporary attacks must be considered as forerunners of the diabetes.

In all cases where hereditary obesity comes on in youth and progresses rapidly, and in non-hereditary cases where treatment is not beneficial, diabetes must be looked out for. Of the former one-half, of the latter fifteen per cent. become diabetic.

In many families it can be shown that some members are fat from childhood and others are diabetic, or the fat individuals become diabetic about the fourth decade. This is shown very well by three tables, giving the number of obese and diabetic members of three generations in each of three families.

In the transitional cases the change is gradual. The individual loses his fat, though the appetite and digestion remain good and there may be no

thirst or increased urination. At last, thirst or an attack of boils causes a urine examination, and sugar is found, usually in small amounts. Frequently calcium oxalate is present in large quantity. In such cases the course of the disease is slow and mild. Diet and proper remedies suffice to keep the patients alive many years.

The causes of the condition are not altogether clear. It is evident that errors in diet do not enter largely into the causation of hereditary cases. Kisch inclines to the belief that the muscles, becoming infiltrated with fat, are unable to convert sugar into glycogen. The chief thing is a congenital abnormality of tissue, by reason of which fat is not used up and sugar not fermented or oxidized.

Diastasic Ferment in the Urine.

Breusing (*Virchow's Archiv*, vol. cvii. p. 186) has found that when a starch solution is added to urine, both normal and pathological, and the mixture kept for some time at blood heat, the starch disappears. It is evidently not converted into glucose, however, but probably into some intermediate product, for while the mixture turns brown when boiled with caustic alkali (Moore's test), it is only after a twenty-four hours' digestion in the hot air chamber that it is capable of reducing Trommer's test, and this only upon prolonged boiling, while the fermentation test gives negative results. In urines boiled previous to adding the starch solution this conversion does not take place, pointing to the destruction of the ferment by the boiling temperature. The ferment can be precipitated by alcohol, and then re-dissolved in water, when it shows its original powers. Diabetic urines have this power as well as the urines of other pathological conditions.

SURGERY.

UNDER THE CHARGE OF

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Gunshot Wound of Chest.

Dr. J. Van Duyn reports (*Buffalo Med. and Surg. Journal*, January, 1888) a case in which a boy was shot in the back one inch and a half to the right of the eighth dorsal spine, the ball, which was round and three-eighths of an inch in diameter, taking a direction upward, forward, and a little outward, and lodging under the middle of the right clavicle. The case may be summarized as follows: Great shock, emphysema of subcutaneous tissue, pain in the chest on deep respiration, also in right shoulder and elbow; numbness of first and second fingers; hæmoptysis, great dyspnœa and dulness, and absence of respiratory murmur over upper lobe of right lung. In three days

the pulmonary symptoms lessened and a rough bruit was heard under the middle of the right clavicle. Twenty-three days afterward the ball was removed from beneath the clavicle. All the symptoms of neuritis of the branches of the outer cord of the brachial plexus were present and continued, together with symptoms of aneurism of the first portion of the axillary.

An interesting point in the clinical history of the case was the occurrence of momentary attacks of sudden blindness, beginning a few minutes after the injury and occurring twice a week or oftener for eight months, at which time the third portion of the subclavian was successfully tied for the axillary aneurism, and that, together with all other marked symptoms, disappeared. Dr. Van Duyn very justly calls attention to the difference between such an operation to-day and one that he witnessed twenty-five years ago, when, in a similar case without antiseptic precaution, death resulted from pleurisy and the exhaustion of suppuration.

Advances in the Surgery of the Gall-bladder.

Dr. M. Hirschberg, after detailing (*Deutsche medicinische Zeitschrift*, Nov. 30, 1887) a case in which a large stone was removed from the gall-bladder, leaving a fistula which subsequently healed, considers the indications for the various operations upon the organ in question, and comes to the following conclusions: Operative interference with the gall-bladder may be indicated in severe cholelithiasis which has resisted medicinal treatment; in retention swellings of the gall-bladder arising from closure of the cystic duct by a stone; and especially in empyema of the gall-bladder. Operative interference is not allowable while a stone is either demonstrably or probably passing through the duct. Its passage into the intestine must be awaited. When life is jeopardized by the retention of bile through the prolonged occlusion of the ductus choledochus, the danger may be averted by the establishment of a fistula from the gall-bladder through the abdominal wall; the escape of bile, even when continued for a year, does not usually materially affect the health. If, however, life is threatened from this cause, the very difficult operation of cholecyst-enterostomy may be attempted, it having been once successful. Cystotomy, when indicated, must now be considered as a perfectly justifiable operation, cholecystectomy being also thought of in cases of chronic formation of stone.

Sendler reports (Ibid.) a case in which after cholecystotomy and removal of numerous stones, death occurred, and the autopsy revealed dilatation of all the ducts down to their smallest branches, which were filled with inspissated bile and a multitude of fully formed facetted concretions, varying in size from a pea to a cherry stone. Köhl publishes another successful case of cholecystectomy for *hydrops vesicæ felleæ*, and Helferich (*Fortschritte der Medicin*, Jan. 1, 1888) holds that the eleven reported cases with continuing good health of the patients appear to show that the gall-bladder is a non-essential organ. Kappler (quoted by Helferich) reports (*Corres. für Schweizer Aerzte*, Sept. 1, 1887) a case in which the common duct being occluded by a pancreatic tumor, a fistula between the gall-bladder and the bowel was successfully established in a man, æt. fifty-five, and was followed by rapid disappearance of jaundice and other symptoms. The case men-

tioned by HIRSCHBERG was doubtless that of WINIWARTER, done in 1882, and was a colo-cholecystotomy. GASTON, of Atlanta, in the same year recommended duodeno-cholecystotomy, and demonstrated its feasibility by experiments on dogs.

DR. E. KÜSTER (*Archiv für klinische Chirurgie*, vol. xxxvi., 1887) reports two cases of operation upon the gall-bladder, in both of which the wound was stitched and the viscus returned to the abdomen. In one there had been an ulcerative perforation secondary to stone, and escape of bile; the patient died. In the second case there was found in conjunction with stones in the gall-bladder and in the cystic duct an enormous distention with a clear viscous fluid; this case recovered. Dr. Küster claims that in certain cases this operation is to be preferred to cholecystectomy, especially as it cannot yet be considered as demonstrated that the gall-bladder is a superfluous organ. He calls attention, too, to the fact that we cannot yet judge fairly of the final results of its removal, and alludes to the sequelæ of total extirpation of the thyroid as having only been noticed after the lapse of years. Tait, Bernays, and Courvoisier, have also practised this "ideale cystotomie." Langenbuch and Hirschberg have opposed it on account of the obvious dangers from imperfection of the stitches, or from incomplete healing. In two cases operated upon by HOFMOKL (*Wiener med. Presse*, 1887, No. 25) the gall-bladder was tapped with a trocar, and the stones were easily removed from its cavity.

MR. KNOWSLEY THORNTON reports (*Brit. Med. Journ.*, Nov. 26, 1887) two successful cases of cholecystotomy in which there were impacted stones in the common duct. In one the wound in the gall-bladder was sutured and the viscus dropped back into the peritoneum, in the other it was drained through the abdominal wall. He thinks that if experience shows that removal of the gall-bladder is nearly as safe as opening it and extracting the stones, there would be a great advantage in avoiding any possible future trouble from the fresh formation of stones. He calls attention to the special difficulties of those cases in which the gall-bladder is contracted and the stone impacted in the common instead of the cystic duct.

In connection with the cases in which the gall-bladder was sutured and returned the risk to which Mr. Morris has called attention should be remembered, viz., that of an impacted calculus in some part of the common or cystic duct beyond reach of the finger or forceps.

MR. W. A. MACKAY reports (*Lancet*, December 24, 1887) the case of a female, æt. forty, in whom the presence of jaundice, colicky pain, an intermittent tumor in the region of the gall-bladder led to the performance of cholecystotomy. A very moderately distended gall-bladder was found, with a small stone impacted in the cystic duct. This was easily removed. The patient died a few weeks later of cancer of the pancreas and left lobe of the liver.

MR. J. W. TAYLOR reports (*British Med. Journ.*, January 21, 1888) a case of gall-stone impacted in the cystic duct so firmly that it could not be dislodged or broken up. The opening in the gall-bladder was sewed to the edges of the abdominal wound, and a large rubber drainage tube put in place. The wound and gall-bladder were syringed out with warm water night and morning. Sixteen days later the stone was seized with Lister's sinus forceps, broken easily, and removed through the wound, which then healed promptly. Mr.

Taylor emphasizes the three following points: the daily use of the syringe; the taking advantage of the softening of the stone; the use of proper forceps, and thinks they will simplify the difficult cases of cholecystotomy with impacted gall-stone.

[In a case we recently operated upon the diagnosis of gall-stones was based upon a history of intermittent hepatic pyrexia, jaundice, abdominal enlargement in the region of the gall-bladder, etc. A free abdominal incision made along the line of the costal cartilages and enlarged by a shorter vertical cut, permitted careful examination of a large area.. The gall-bladder was normal in size and consistence. The cystic and hepatic ducts could be plainly felt, and the common duct traced inward into a mass of adherent intestine and omentum where it could no longer be clearly followed. There was diminished mobility of both liver and intestines from prior adhesions. Extensive perihepatitis was present. The right lobe was greatly enlarged and hardened. Free oozing took place whenever the surface of the liver was touched, however gently. The wound was closed. The patient had no shock whatever, and six hours later her temperature and pulse were normal, but the following day there was a rapid rise of temperature, such as she had been previously having at short intervals, and great increase of jaundice. She died on the succeeding day.

An autopsy, made by Professor Osler, in whose practice the case occurred, revealed a small stone at the extreme orifice of the common duct (which was much lengthened), lying just beneath the mucous membrane of the duodenum, and situated not less than ten inches from the wound at the level of the surface of the abdomen. An hour's careful dissection was necessary to disengage the duct and duodenum from adhesions to surrounding structures. The stone could not be forced into the bowel, nor backward further than the point of origin of the ductus choledochus. It could not have been reached without the introduction of the whole hand into the abdominal cavity, and if it had been found could hardly have been dealt with in an operative way, except by lithotripsy through the walls of the duct by means of padded forceps. It is evident that no permanent benefit could have resulted. The wound was in good condition at the time of the autopsy, no hemorrhage had occurred, the general peritoneal cavity was entirely free from exudation or inflammation. There was a localized peritonitis over the hepatic region. The liver was cirrhotic, and contained a half-dozen cicatrices of gummata. The kidneys were enlarged and hard.

The case well illustrates the point made by Mr. Morris which has been mentioned above, viz., the possible existence of a stone beyond the reach of the operator, as well as that of Mr. Thornton as to the increased difficulty of such operations as compared with those in which the stone is readily found in the cystic duct.—ED.]

CYSTIC TUMOR OF THE KIDNEY REMOVED BY ABDOMINAL SECTION.

DR. A. VANDERVEER reports a case of a large cyst, thought to be ovarian but found to be renal, which was successfully removed together with the kidney by median abdominal section. Subsequent to the operation the early history of the case was obtained, and it was found that the tumor had originated in the right side near the liver, and had grown downward reaching the

crest of the ilium. It had been aspirated several times, several quarts of clear serum being removed on each occasion. The patient made a good recovery, and at the time of the report was passing twenty-four ounces of urine daily.

Nephrectomy with Accidental Wounding of the Bowel.

Von Dittel reports (*Wiener med. Wochen.*, 41, 1887) a case of pyelitis accompanied with enormous distention of the kidney. The tumor, which occupied the space between the ilium and the false ribs on the left side, varied in size, the variation having a significant relation to the urine, which was clear when the tumor was large, purulent and offensive when it was small. The abdomen was opened, the adhesions separated, the tumor opened, discharging an enormous quantity of fetid pus, and the pedicle tied and separated. It was then found that the intestine had been wounded to an extent of about one-quarter of its circumference. The wound was sewn with the Lembert suture and the peritoneum by interrupted suture. The patient finally recovered, though primary union of the intestinal wound did not occur, on account, probably, of a severe diarrhœa during a few days immediately after the operation.

The Radical Cure of Hernia.

The change which has taken place in modern surgery as a result of the introduction of antiseptic methods, is nowhere better seen than in the rapidly increasing frequency of operations for the radical cure of hernia and their great apparent success. At the annual meeting of the British Medical Association, held last year in Dublin, a series of interesting papers was read, which have only recently been published in full. (*The British Med. Journ.*, Dec. 3, 10, 17, 1887.)

The most important points to be noted are: (*a*) The treatment of the sac. (*b*) The treatment of the rings and edges of the canal. (*c*) The after-treatment as to the employment of pressure by truss or otherwise. Many details which cannot be considered as unimportant must be omitted from a brief summary, and should be studied in the original papers, which were remarkably concise and practical. Strict antiseptic methods were employed in every case.

Dr. Macewen carefully separates the sac from the entire inguinal canal and from the abdominal aspect of the internal ring; fastens a stitch in the fundus, throws the whole sac into a series of folds, transfixing them with the same stitch carried through one after the other up to the ring, threads the free end of the stitch in an eyed needle, and passes it through the abdominal wall an inch above the upper border of the internal ring, the skin at that point being pulled up so that it is not included. While traction is made on that thread, pulling the sac into the ring, so that its distal extremity is furthest backward and upward, the conjoined tendon is pierced by a ligature, so as to leave a loop inside; the lower end of that stitch is then carried through Poupart's ligament from within outward, the upper end through the transversalis, internal and external oblique muscles. Similar stitches may be introduced lower if necessary. The free end of the ligature through the sac is then fastened by passing it several times through the external oblique muscle, and

the other stitches are tied, closing the internal ring. Chromicized catgut is used for these sutures, and to unite the skin. A decalcified bone drainage tube is laid in the lower angle of the wound. No truss is used. He states that the principle of the operation may be applied to femoral hernias, but gives no details.

MR. BANKS dissects out the sac, opens it, replaces bowel, ties and cuts away adherent omentum, pulls the sac well down, ligatures it as high in the canal as possible, and removes it. Finally, the pillars of the ring are brought together by two or three silver sutures, which are left in position. In femoral hernia the cleaning and removing of the sac constitute the whole operation. In ventral and umbilical hernia the sac is used as a plug to stop the aperture. He considers "freshening" the edges of the canal with the idea of securing union, to be "utter nonsense." He encourages his patients to wear light trusses afterward.

MR. BALL isolates the sac completely, twists it on itself four or five times, and transfixes it with two sutures, passed first through one pillar of the ring, then through the sac, and then through the opposite pillar, after this the sac is excised, and the sutures tied over leaden plates. He objects to the subsequent use of a truss.

MR. STOKES dissects the sac from the elements of the cord, divides it between two catgut ligatures, twists the proximal portion until distinct resistance is felt, and transfixes it with two silk sutures passing through both pillars and walls of the canal. These are brought through the skin an inch from the incision on either side, and tied "button fashion" over a leaden plate. He thinks the sutures serve a merely temporary purpose, and should be introduced loosely, and objects strongly to the permanent metal sutures. He is convinced that the after application of the lightest truss, fitted with a pad, is hurtful, and uses a linen dressing known in Dublin as "Harrison's truss."

MR. BARKER clears the neck of the sac close to the external ring, surrounds it with a silk ligature, opens it longitudinally, to see that it is free from gut or omentum, ties it tightly, leaving long ends to the ligature, and cuts it away, allowing the lower portion to take care of itself. One of the ligature ends is then threaded in a needle, which is carried up the inguinal canal, forced through one border of the internal ring, and out through the external oblique muscle, the other end is put through the opposite border, when the two are tied, drawing the stump of the sac into the internal ring and closing it. The walls of the canal are then closed by four to seven ligatures; the ends are cut short. The skin wound is then stitched. No drainage is used. The use of trusses is avoided.

MR. FRANKS closes the internal ring with silver sutures, two or three in number, transfixing the sac and excising it below them; he also closes the external ring. He leaves the sutures *in situ*, and believes their retention "materially fortifies the parts." He thinks a truss rarely necessary, and uses a cotton wool pad held in place by a bandage.

MR. MAYO ROBSON ligatures and excises the sac and draws the pillars together with silver sutures.

Other gentlemen reported cases, and MR. PUZEY called attention to the need of prolonged rest after these operations. The aggregate number of cases operated upon, including those in which strangulation was present, was about

450; the deaths from the operation were very few; but the total percentage on the whole number of operations cannot be calculated, as exact figures was not given in each case. The mortality was, however, beyond doubt very trifling, as taking, for example, the cases of Macewen, Barker, Ball, and Franks, we have an aggregate of 168 cases without a single death. Only 10 deaths are mentioned out of the whole number, and of these 2 were from bronchitis.

Resection of the Rectum.

Bardenheuer describes (*Volkmann's Sammlung klinische Vorträge*, No. 298) an operation by which he removes the rectum, leaving the sphincters untouched. The sacral ligaments and the sacrum itself are cut through, the rectum is brought into the wound by means of the index fingers, which can readily be introduced, and its fascial connections are stripped from it in the same manner. It is cut through well above the disease limits, its anterior attachments gently separated, and it is then severed above the sphincter. The two remaining portions are carefully stitched together. The cut through the sphincter with which the operation begins is left unsewed. Bleeding is stopped by direct pressure with carbolized sponges. The operation can be performed in fifteen or, at the most, thirty minutes, and from two to four ligatures are now employed, when formerly, in similar operations, fifty to sixty were necessary. The details are given with great care, and should be read in the original article, as the results seem to have been sufficiently good to warrant the hope that many cases in which now lumbar colotomy seems the only resource, may be much more completely and satisfactorily relieved in this manner.

Treatment of Vesical Tumors.

Sir Henry Thompson, in recent lectures (*British Medical Journal*, January 7 and 14, 1888), reviews the subject of tumors of the bladder in the light of his most recent experience. The so-called "villous growth," or papilloma of the bladder, causing death by its irrepressible function of continuous bloodletting, is the most common of all these growths, and is improperly called "villous cancer," as it consists of normal elements the arrangement of which is also normal. When, in addition to the papillary enlargement, there is a considerable proportion of connective tissue at the base he employs the term "fibrous papilloma." He alludes to the simple mucous polypi, the myomata, and the dermoid tumors as rare varieties of vesical growths, and scirrhus and sarcomata as comparatively infrequent in the adult. Epithelioma is more common.

At the outset of a vesical tumor undue frequency of micturition is commonly the only sign. Hemorrhage occurring next, may be distinguished from that of calculus, first, by its greater abundance, next by the absence of pain and vesical irritation. If the blood comes from the kidney it is brownish not florid, and is almost invariably mixed with the urine, not following it, or, more rarely, preceding it, as in vesical or prostatic growths. Microscopic examination made after washing out the bladder with clear water subsequent to sounding may reveal typical papillomatous structures. Only in cancerous

growths can the diagnosis usually be made by the sound or by rectal examination.

No operation should be attempted in malignant growths. The non-malignant growths may be divided into two classes: 1st. Those cases in which microscopic evidence of the presence of papilloma is wanting but the symptoms strongly point to it. Here digital exploration through a perineal opening should be made and the growth removed by that channel, or, at the same sitting, by a suprapubic cystotomy, the perineal incision not interfering with the latter operation.

The second class, in which the microscope has established the diagnosis, should be operated on by the suprapubic method, the growths removed by blunt forceps if possible, and the wound treated as after suprapubic lithotomy. Sir Henry Thompson has now operated on thirty-eight patients, in five with complete success; in several with recurrence leading to second operation; four deaths took place within a few days after the operation, two from cystitis and peritonitis; two died from blood poisoning, each on the twelfth day.

Dr. F. S. WATSON (*Boston Med. and Surg. Journal*, November 3, 1887) reports a case of sessile papilloma removed by the suprapubic method. The bladder was sutured and a perineal drainage tube used, but the sutures broke under the strain of vesical tenesmus, apparently due largely to the presence of the tube, which failed to drain and was withdrawn. The patient was well in seven and a half weeks. Dr. Watson favors the practice of Guyon as to the performance of a palliative operation, at least for drainage, in cancerous growths. He believes with Thompson in the general advisability of perineal section, as a preliminary operation for fixing the exact nature and location of the disease in doubtful cases, except where there is enlargement of the prostate. As a supplementary operation for purposes of drainage, he thinks it useful if the bladder is sewed, but otherwise unnecessary. As to the suture of the bladder wound, his conclusions are: 1. Where hemorrhage is going on, or likely to occur to any great degree after the operation, it is better not to sew. 2. Where neither cystitis nor hemorrhage is present, suture. 3. Where some cystitis is present, the decision is doubtful.

MR. T. D. COLLIS BARRY (*Lancet*, September 17, 1887) reports three cases of cystotomy with perineal drainage in cases of advanced cancerous growths of the bladder. The indication in each case was distressing pain during micturition. Two cases lived nine months, one three months after the operation. In all great relief was afforded.

DR. HERMAN reports (*Ibid.*, December 10, 1887) a case of primary cancer of the female bladder in which a growth, the size of a small orange, was removed by vaginal cystotomy. In six months the growth recurred and was again removed. Six months later on recurrence a third operation was performed followed by death in twenty-four hours. A few weeks after each of the first two operations the vesico-vaginal fistula was successfully closed. The second growth was from a new and distinct portion of the bladder wall. The case was complicated by the coexistence of ovarian tumor. The vaginal operation was preferred to one per urethram, on account of the easier access to the interior of the bladder and the absence of danger of permanent loss of control of the bladder.

ENGELBACH and ROLLIN report (*Annales des Maladies Gen.-Urin.*, September,

1887) the case of a man, æt. fifty-one, from whom a vesical epithelioma was removed by galvano-cautery through a suprapubic incision. The upper and lower angles of the bladder wound and that between the recti were sutured with catgut, and the middle of the wound left open for the insertion of a drainage tube which was fixed to the skin. The result was excellent.

BUDOR reports (*Ibid.*, November, 1887) a case in which symptoms of bladder tumors having existed for twenty-four years, an autopsy revealed an infiltration of the base of the bladder said to be scirrhus. It seems probable that the case was one of late transformation of some simple growth, as such a history is clinically unknown.

LUXATION AND FRACTURE OF THE AXIS WITH SUBLUXATION OF THE ATLAS.

M. ANNEQUIN reports (*Archives de Médecine et de Pharmacie Militaires*, December, 1887) the case of a soldier who, after a fall upon the head, followed by severe pain but no loss of power, and by permanent inclination of the head to the right and persistent inability to rotate it, presented the following conditions: deep vague crepitus was felt at the first examination; the spinous process of the axis was unduly prominent, being displaced backward and to the left; a prominence on the posterior wall of the pharynx could be seen and felt, which proved to be the anterior tubercle of the atlas displaced forward and downward; the inferior border of the axis could be traced as a slight prominence between the first and third cervical vertebræ, which fact, taken in conjunction with the prominence of its spinous process, seemed to indicate a separation between the anterior and posterior portions of the axis —*i. e.*, a double or bilateral fracture of its bony arches. The patient made a good recovery, there being at no time symptoms of spinal compression. The diagnosis was concurred in by MM. Ollier, Moliére, and others.

OTOLOGY.

UNDER THE CHARGE OF

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DIPHTHERIA OF THE EAR.

DR. ROBERT BARCLAY, in a paper read before the St. Louis Medical Society, October 22, 1887, has very ably discussed this important subject. He reminds his readers that the aural invasion of diphtheria is very insidious, usually comparatively painless, showing a marked tendency uniformly to assume the chronic form, and apt to produce very rapid and widespread destruction, with necrosis and burrowing, to neighboring parts. Among its probable effects may be expected one of the following: fetid discharges, often persistent, always annoying and disgusting; deafness, erosion of the

Eustachian tube, mastoid perforation, necrosis, facial palsy, meningitis, thrombosis, embolism, phlebitis, pyæmia, cerebral abscess, and death. These dangers, in view of the insidious onset of aural diphtheria, should lead to an early and frequent examination of the ear in every case of diphtheria.

Should the surgeon find an inflamed and bulging drum membrane, even if there be no complaint of ear-ache, it is his duty to make a free incision in the membrane, in order to permit the escape of matter, and thus check burrowing to deeper parts. Let syringing of the nasopharynx, if done, be performed with great care, lest morbid matter be forced from the pharynx into the middle ear. Whatever the local phenomena, "treat the patient, and in adopting modifying local measures for the management of an aural development of diphtheria, let free drainage, cleanliness, and antisepsis be the aim."

Impeded Nasal Respiration and Purulent Catarrh of the Middle Ear.

In a paper read before the Berlin Medical Society, December 7, 1887, Dr. Barth called attention to the importance of the relation of the nose to the ear, and the necessity of relieving nasal disease found in connection with otitis in its various forms. The aurist must insist upon the removal of every hindrance to nasal respiration, because only thereby is it possible to ward off the aural maladies, which are always imminent in nasal diseases, and to prevent both acute and chronic catarrh of the nose and ear. If this teaching is remembered and acted upon, many diseases of the ear can be prevented, and also a large percentage of ear diseases which otherwise would become incurable can be cured.

Excision of the Ossicles of the Drum of the Ear for Chronic Purulent Inflammation of the Middle Ear.

Dr. Samuel Sexton, of New York, presented a paper with the above-named title, at the last meeting of the American Otological Society (July 19, 1887).

Within the past year further observations of the benefits of this operation have been made by Dr. Sexton, upon nineteen cases—thirteen females and six males. Seven were between 5 and 12 years of age, eight between 13 and 20, and four between 23 and 40 years of age.

The conditions under which the operation was undertaken were, in most cases, chronic and offensive discharge from the ear, with frequent "gatherings and breakings," with obstruction to drainage from the attic and antrum. The patients were usually very deaf and suffered from distressing tinnitus and autophony. Their general health was not good, and the pathological condition of the drum was in all cases one of irremediable impairment of the transmitting apparatus.

The resection must be done under ether narcosis, the patient lying on the back, upon a table so constructed that the head and body can be raised at a convenient angle. The electric light is almost an essential (obtained from a small 6 to 10 candle lamp held on the forehead by means of a head band, like

the head-mirror) since the open light of any gas flame would subject the patient to the risk of fire.

The first step consists in detaching every remnant of the membrana from the tympanic ring. Then, if it has not been done by disease, the incudo-stapedial joint is to be divided by means of a small knife of special shape. The malleus is then freed from its attachments, including the tensor tympani muscle, and all tendinous connections. After mopping the cavity free from blood, the bone is seized with stout forceps—*i. e.*, foreign body forceps, designed for ear work (Sexton's)—as high up as possible, and by gentle traction gradually brought away. Then the long process of the incus is sought. Where it is attached to the stapes, the long process generally hangs down in situ and in easy view. But where the incus has been separated from the stapes by disease, its removal is by no means easy, since the long process may have been eroded, or, if remaining, the entire bone may be swept from view, and yet lodged upon the scute behind the margin of the tympanic ring, or displaced backward toward the antrum. Experience shortens the operation; from one hour the time may be reduced to ten or fifteen minutes. Very little inflammatory reaction is the result, as a rule. Some infiltration of the parts may be expected. In cachectic subjects the discharge may continue until the general health is improved.

A marked improvement to hearing occurred in most of the nineteen cases operated on, the gain varying from 75 per cent. to 100 per cent. The general health was generally improved after the operation, especially in phthisical adults and in children.

DISEASES OF THE LARYNX AND CONTIGUOUS STRUCTURES.

UNDER THE CHARGE OF

J. SOLIS-COHEN, M.D.,

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Primary Carcinoma of the Trachea: its Differentiation from Syphilis.

Primary carcinoma of the trachea is exceedingly rare. Mackenzie mentions but two cases, one reported by Langhans and one under his own care. In the *International Cyclopedia of Surgery*, Cohen has tabulated eleven instances, none of them in his own practice, to which may be added one by Beebe, a practitioner of homœopathy (*Hahnemann Medical Journal*), and now one recently reported by Gerhardt (*Berliner klinische Wochenschrift*, December 5, 1887, p. 933), the specimen from which was exhibited and described by Virchow to the Berliner Medicinische Gesellschaft on November 16th. The rarity of primitive carcinoma of the trachea probably insures a record of every recognized instance. Thus there is a total of but thirteen; in marked contrast to the number of published cases of carcinoma of the larynx, and the probably still greater number unreported.

Gerhardt's patient was a peasant woman, thirty-eight years of age, with no history of disease other than measles, and who had menstruated regularly from her fifteenth year. The symptoms of the disease began in the summer of 1886 with dyspnœa, augmenting to such an extent as to preclude continuous labor by the spring of 1887. At this time cough began, with expectoration of mucus, tinged at times with blood. At a later date the amount of expectoration measured from 6 to 9½ ounces daily. By the end of August the patient became confined to bed. The voice had not undergone alteration further than a slight rise in pitch. In May, 1887, pains began in the left heel, spreading later to the sole of the foot and then along the lower extremity. The patient entered the hospital on September 22d and died November 13th. When admitted, a slight thickening in the jugular fossa was observed and was attributed to tumefaction of the middle lobe of the thyroid gland. This point was painful. Pressure upon it provoked cough. Laryngoscopic inspection furnished but negative results at first, but after frequent examinations with the head bent forward, a constriction of the trachea was observed in the region of the fifth cartilage, due to a yellowish projection fissured in its centre, which bulged slightly during the expiratory phase of respiration. It did not reduce the vital capacity below 225 cubic inches. Tubular bougies ¼–½ inch in thickness were passed into the trachea on five occasions, producing amelioration at first, but subsequently provoking dyspnœa and bloody expectoration, so that the procedure had to be abandoned. Eventually tracheotomy became necessary on account of severe suffocative paroxysms. Although the dyspnœa was thereby diminished a little, the mucous expectoration occluded the passage and the patient succumbed. The diagnosis of carcinoma had been made on general grounds; although microscopic evidence from the sputa afforded no indication thereof.

The tumor, as described by Virchow, consisted of a considerable tumefaction of the walls of the trachea and adjoining tissues located in its middle portion but more to the left and about 1¼ inches above the bifurcation. Ulceration had taken place with perforation of the mucous membrane but without the slightest papillary outgrowth. The œsophagus and the thyroid gland were entirely free from disease. Some small nodulous particles on the outer portion of the growth might be affected lymph glands or only accessory nodules of the original tumor. The cancer contained neither squamous nor cylindric epithelium, but a very polymorphous small-celled epithelium rather widely different from the normal forms in the same location. Its structure was more analogous to that of the mucous glands than to any other. It was found, on further examination, that the epithelium, and even that in the pulmonary nodules, was everywhere arranged in long, many branched, and anastomosing strands, the distribution resembling most that of the lymph canals.

Gerhardt also called attention to points which might be utilized in the differentiation of carcinoma from syphilis of the trachea. The latter commences with phenomena of irritation, cough, and expectoration of masses of mucus, of blood, and sometimes of detached fragments of cartilage; those of dyspnœa occurring much later. The recognition of syphilitic constriction in the irritative stage permits, as a rule, of its permanent relief. After the stage of dyspnœa begins, the reparative process is attended with further constriction

by traction of the cicatricial tissue, the more that the ulceration is frequently just above the bifurcation.

The case of cancer began with dyspnœa in the summer of 1886, an irritative cough did not take place until the following May. In syphilitic constriction the disease begins with ulceration, while in the case of cancer it evidently did not occur until some time later.

Indications for Thyrotomy and for Laryngectomy in Carcinoma of the Larynx.

MM. Ch. Monod and A. Ruault (*Gaz. Hebd. de Méd. et de Chir.*, Dec. 16, 1887, p. 821) presented to the Académie de Médecine, a larynx containing an epithelioma limited to the right vocal band, with photographs of the fresh specimen and some histological sections. The history of this case and the character of the specimen seem to indicate the probability that the patient could have been saved by timely division of the larynx and extirpation of the malignant growth without sacrificing his larynx in either a total or unilateral laryngectomy.

The specimen presented a tumor larger than half a filbert, developed at the expense of the ligamentous portion of the right vocal band, the anterior portion of which band for the length of 2 mm., and the posterior part for a length of between 4 and 5 mm. were perfectly healthy. The intermediate portion of the band served as a pedicle to the tumor, but was not adherent in any manner to the subjacent internal thyro-arytenoid muscle, which, with the entire remainder of the larynx, was perfectly healthy. Microscopic examination by Dr. Gombault and Prof. Cornil determined the tumor to be a lobulated cornifying epithelioma containing numerous isolated epidermic nests. The squamous epithelium of the vocal band was still visible at the surface of the tumor, which was ulcerated at its anterior portion, and which, at several points of the intermediate portion submitted to microscopy, showed a certain number of commencing ulcerations.

When first seen, late in October, 1887, the patient, a robust man of sixty-three, with no morbid symptom but an aphonia of five months duration following hoarseness which had supervened rather suddenly ten months previously, had been troubled for a few days with excessive salivation, and with cough attended with the expectoration of discolored sputa tinged with blood. Laryngoscopic inspection revealed general hyperæmia with an eroded tumor the size of less than one-third of a filbert, in the median portion of the vocal band. The diagnosis of carcinoma was made at once, and the following line of surgical treatment laid out: Tracheotomy as low down as possible; habituation to the presence of the Trendelenburg canula; splitting of the larynx and removal of the mass with the electrocaustic knife; with an intention to perform unilateral laryngectomy in case the limitations of the disease should turn out to be illy circumscribed. Circumstances prevented the adoption of this plan for some two weeks or more, during which time the tumor had grown to the size of half a filbert, so as nearly to fill the glottis, the ulceration having extended a little in all directions and with excavation. Tracheotomy was performed November 15th. The thyroid gland being found calcified, the trachea had to be opened just below the cricoid cartilage; and the

escape of blood from the thyroid veins severed was such that penetration of a certain quantity into the bronchi could not be prevented. On the evening of the second day fever ensued; on the morning of the third day dyspnœa became excessive, an intense blowing being heard at the middle of the right lung; asphyxia rapidly followed and the patient succumbed on the same day.

The *post-mortem* examination shows that the plan of operation proposed would have been perfectly feasible.

A similar case occurred in the practice of Billroth (Salzer, *Archiv f. klin. Chir.*, xxi. p. 848). A patient had an epithelioma limited to the right vocal band. Laryngo-fissure was performed one year after the onset of the symptoms, and there had been no recurrence as late as two years and nine months after the operation.

Jules Boeckel (Schwartz, *Thèse d'agrégation*, 1886) operated on a patient with epithelioma with epidermic nests which occupied not only the left vocal band but also the ventricle and the aryepiglottic fold; and there had been no recurrence up to four and a half years after operation.

Carcinoma of the Larynx; an Early Proposal of Excision.

Dr. E. Kœberlé reports (*Gaz. méd. de Paris*, December 10, 1887, p. 595) a case of polypous and papillary tumors of the larynx in which, in 1865, he split the larynx anteriorly, removed the growths, cauterized their points of implantation with acid nitrate of mercury; kept the wings of the larynx asunder for three weeks with a horseshoe spring of steel wire, and, too, for more than a year and until the patient's death, maintained patency of the artificial opening with a canula, not for purposes of respiration, but for purposes of getting access to the parts in case of recurrence. While no recurrence took place at the site of the original tumor in the left vocal band and immediate vicinity, excessive papillary vegetations were produced deep down in the trachea and were removed from time to time until they finally exhausted the patient by suffocative dyspnœa, tracheal catarrh, and progressive asthenia.

Kœberlé states that this patient proposed to him that he should "excise his stenotic air-tube and replace it with a metallic one."

Dr. J. Solis-Cohen describes (*The Medical News*, December 3, 1887) the larynx of a patient from whom, nearly twenty years ago, he removed by external access an epithelioma occupying the left vocal band and other tissues; a large portion of the vocal band and the entire lining membrane of the ventricle being removed. Compensatory tissue doing service as a vocal band had been formed at the expense of the ventricle, which had undergone eversive obliteration in great part in the process.

A New Œsophagoscope.

Prof. Stoerk (*Wiener med. Woch.*, Aug. 20, 1887) describes and depicts a new instrument in which the œsophageal tube is rectangularly rigid instead of being movable, but is telescoped in such a manner that it may be lengthened out after it has been inserted. It appears to be a much simpler and more readily manageable instrument than his former ones. He states that by the use of cocaine even inexperienced persons can introduce the instrument in a few seconds without exciting the slightest pain.

Syphilis of the Trachea and of the Thyroid Gland.

Dr. Eugene Fränkel, of Hamburg (*Deutsche medicinische Wochenschrift*, December 1, 1887), details and illustrates the post-mortem appearances of a case of extensive gummatous infiltration and stellate cicatrization of the trachea and bronchi, with gummatous disease of the thyroid gland, which proceeded without symptoms; the patient, a female, forty-one years of age, laboring until within six days of her death.

He calls attention to the great sclerosis of connective tissue surrounding stenotic portions of the air-passages, which does not seem to be fully appreciated by authors; and to the imbedding of the recurrent nerve, as in one of his cases illustrated, as a factor in peripheral unilateral paralysis of the larynx. He, likewise, emphasizes the fact that all syphilitic strictures of the trachea are not surrounded with peritracheal sclerosis, and he pictures two views from a case of direct perforation of the œsophagus from Curschmann's clinic in which there was no infiltration of the connective tissue. He discusses the rarity of gummatous disease of the thyroid gland, less frequent in acquired than in hereditary syphilis, shows that it has been observed only in association with visceral syphilis, that it presents no histological difference from gummata in other organs, and that there are no clinical manifestations by which its existence can be indicated.

Artificial Digestion of Impacted Meat in the Œsophagus.

Drs. Bobbett and Battle (*N. C. Med. Journ.*, Oct. 1887, *Med. and Surg. Rep.*, Nov. 19, 1887, p. 688) relate an instance of impaction of a mass of ham in the œsophagus, producing complete occlusion, in a child three years of age, the subject of a stricture of eighteen months standing, the result of glutition of lye. All efforts at extraction failing, they injected into the œsophagus a digestive mixture composed of thirty grains of trypsin and ten of sodium bicarbonate in an ounce of water, following this by occasional draughts of the mixture. Swallowing became practicable just forty-eight hours after the impaction; vomiting occurred shortly after, and a number of meat fibres were found in the vomit. The morsel had in all probability become disintegrated by the digestive mixture, and then been carried down by a draught of water.

Intralaryngeal Removal of a Tumor of at Least Twenty-five Years' Standing.

The great length of time for which an histologically benign neoplasm may sojourn in the larynx is exemplified in a case of extensive papilloma recently removed with forceps by Dr. Charles A. Todd, of St. Louis (*St. Louis Courier of Medicine*, January, 1888, p. 18). Attempts to remove this growth had been made in England as far back as 1862. The patient had been aphonious since 1854, or for a period of thirty-three years.

For eight or ten months previous to examination by Dr. Todd, he had been obliged to sleep in the sitting posture, sometimes awakening six to twelve times a night with a choking sensation whenever he fell backward. Deep breathing was impossible. The voice was only a hoarse whisper. The tumor

apparently completely filled the larynx. It had the appearances of papilloma and evidently sprang from the anterior part of the larynx and near the base of the epiglottis.

After the operation the voice became strong and resonant, though rough and husky, the weight of the patient increased, and his general health to appearance became perfect.

DERMATOLOGY.

UNDER THE CHARGE OF

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Leukæmia Cutis.

Hochsinger and Schiff (*Viertelj. f. Derm. ü. Syph.*, 1887, 3 Heft) report a case of this very rare form of cutaneous disease, the same being only the third on record. The two other cases were reported by Biesiadecki and by Kaposi. The patient was a boy eight months old, with marked leukæmia (general swelling of the lymphatics, tumor of the spleen, enlargement of the liver, and increase of the white blood-corpuscles), and whose entire skin, especially of the face and head, was studded with numerous pin-head to hazel-nut sized infiltrations of, for the most part, a nodular and rounded form, sometimes umbilicated. They were of a yellowish and brownish-reddish color, were firm, and were movable with the skin over the loose connective tissue. Microscopic examination showed them to be composed entirely of lymphoid cell elements in the skin identical with the lymph cells of the blood. Here and there existed a scanty, finely reticular stroma. The authors favor the use of "leukæmia cutis" to express the condition, rather than the "lymphodermia perniciosa," proposed by Kaposi. The disease has no relation to mycosis fungoides—the "lymphadenie cutanée" of French writers.

Lepra and Syphilis.

Dr. E. Arning (*Monatsh. f. prakt. Derm.*, 1887, No. 15) (whose studies were made in the Sandwich Islands) expressed himself before the Medical Society of Hamburg on the subject as follows. He believes that leprosy is more allied to tuberculosis than to syphilis. It differs from syphilis in the following points: It is not transmissible through the semen, ovum, or placental circulation; it shows no characteristic disease in the fœtus; it possesses no primary infection nor typical incubation period; it enters the system stealthily through unknown avenues, and pursues its course toward a fatal termination, spontaneous cure being rare; it shows a marked disposition

to select certain organs, and the inflammatory new growths manifest but little tendency to break down; the central nervous system as a rule remains unaffected, but the peripheric nerves, especially of the trophic and sensitive system, are the special seat of the disease. Bone lesions are secondary, and are not of a local nature, being dependent upon severe trophic nerve disturbance; new growths of bone and primary joint affections are also wanting. Spreading, serpiginous ulcerations of the skin and mucous membrane, common in syphilis, are likewise not met with in lepra. Lepra spares the hair of the scalp; shows no disposition to attack the genitalia, anus, or mouth; and, finally, remains uninfluenced by mercury and iodide of potassium. Microscopic examination shows bacilli in great numbers in the tubercular manifestations, but they are not found in the erythematous, papulo-circinate, and bullous forms of the disease. The lesions of the deeper structures, especially of the bones and muscles, are due to the disease attacking the nerve trunks.

Elephantiasis in Children.

Moncorvo (*Monatshf. für Derm.*, 1887, No. 16) states that the usually accepted view that this disease (elephantiasis arabum) is met with only in adults, is erroneous. In his clinic at Rio de Janeiro, forty-one cases occurred in children out of one hundred and eighty-three cases in all. In a group of twenty-four cases, twelve were males and the same number females, the oldest being fifteen years of age. In another series of seventeen observations, occurring in adults, it was shown that the disease began between the ages of two and twelve years.

A Case of Rötheln occurring during the Puerperium.

Brief notes of rötheln developing a few days after delivery are reported (*Boston Medical and Surgical Journal*, August 18, 1887) by Kite. The temperature at the outbreak reached 105.5°, gradually subsiding to the normal. The eruption invaded the whole body, including face and scalp, and was followed by desquamation. The patient had not been out of the house for three weeks prior to confinement, and so far as known there had been no case of rötheln in the neighborhood for two weeks.

Soziodol in Cutaneous Diseases.

Oscar Lassar (*Therap. Monatshefte*, No. 11, 1887) finds that this remedy in five and ten per cent. strength, in the form of dusting-powder and paste (with zinc, starch, and vaseline or lanoline), brings inflamed and irritated skin to a mild desquamation without causing reaction, and that it exerts a rapid and beneficial influence on recent as well as on more chronic eczemas, tinea circinata, tinea tonsurans, impetigo, and ulcers. In many respects the action of the remedy is similar to that of salicylic acid, but it may be used stronger without the danger of exciting artificial inflammation.

Treatment of Melanoderma.

Leloir (*Monatshefte für prak. Derm.*, No. 24, 1887) recommends, for the treatment of this affection, that the skin be first thoroughly cleansed with a

mild potash soap or alcohol, and then repeated applications of a solution of 100 parts chloroform and 15 parts chrysarobin. After this dries in it is painted over with traumaticin (liq. gutta-percha). The author has used this remedy in numerous cases of pigmentation due to different causes, in three cases of flat pigment-nævus (nævus spilus), as well as in two cases of pigmentary nævus the size of a silver dollar with good results. In two of the last cases the application was preceded by a salicylic acid ointment, which it was thought aided the action of the chrysarobin.

Seborrhœal Eczema.

Unna's studies have led him to conclude that (*Journ. Cutaneous and Genito-Urinary Diseases*, December, 1887) the sebaceous glands are practically not involved in the different forms of disease called seborrhœa. The oily form arises from a hypersecretion of the sweat glands, and should be rightly named "hyperidrosis oleosa." The other variety of so-called seborrhœa, Unna looks upon as a form of eczema—eczema seborrhoicum.

The starting point of seborrhœal eczema is usually the scalp, or occasionally upon one of the well-known surfaces rich in sweat glands, as the axilla and cruro-scrotal fold. The affection begins as a latent catarrh of the skin, characterized by an agglutination of epidermic scales, and a faulty distribution of the oil secretion, the hair becoming abnormally dry from closing of the hair follicles, while the epidermis and exfoliating scales are abnormally fatty from the hypersecretion of oil from the sweat glands. In one class of cases this continues, possibly becoming more marked, more or less loss of hair occurring; finally baldness may ensue, and then the scaliness soon disappears, to give place to "hyperidrosis oleosa" (seborrhœa oleosa). In another class of cases the scaliness rapidly increases forming fatty crusts, with accompanying loss of hair; the disease spreads to the forehead, neck, and also may involve the nose and cheeks. In the third class of cases the catarrhal appearances are most pronounced, "weeping" may occur. The scaliness is lost, and instead there is found a dark red, moist and shining basal horny layer—in fact, all the common symptoms of eczema. The first (scaly) class represents the affection commonly known as pityriasis capitis; the second (crusty), seborrhœa sicca; and third (moist) many affections heretofore considered as forms of eczema capitis.

The next favorite site is the sternal region; here the crusty form is found almost exclusively. In the axilla the moist form is most common. It may spread from the shoulder down the arms, preferably upon the flexor surfaces. The back of the hands and fingers are also often affected with the moist form, while at the same time the crusty variety is seen upon the scalp. On the palms and soles it appears as small heaped-up scaly masses, resembling psoriasis guttata; later the epidermis peels off. Its occurrence on these last named parts, the writer states, is a strong argument in favor of its independence of the sebaceous glands.

On the face, on bearded parts, it appears as a diffuse pityriasis or as circumscribed, reddened, itchy patches. There is no loss of hair. In women, it appears as grayish or yellowish scaly patches. Sometimes, on the face, small red papules appear on the forehead, cheeks, and nose, giving rise to the con-

dition described by the author as "eczematous rosacea." The face is also a favorite location for moist eczema seborrhoicum, especially in children. In the treatment of the different forms of seborrhœal eczema, sulphur is extremely valuable, especially in the moist variety; in other varieties chrysarobin, pyrogallol, and resorcin, are more useful. Tarry and lead salves are unsatisfactory. Internal treatment is seldom necessary.

The Primitive Patch of Pityriasis Rosea.

Basing his opinion upon an observation of eight cases of the disease, Brocq believes (*Annales de Derm. et de Syph.*, vol. viii., 10) that usually the affection is heralded by a solitary patch (called by him the plaque primitive), and that later, after a period varying from four to fifteen days, the eruption becomes suddenly more or less general. The initial patch is seen most frequently near the middle line of the waist anteriorly, but may also appear on the side of the neck, and upon the arm.

On Eczema and Psoriasis.

Myrtle reports briefly his observations (*Lancet*, December 3, 1887) on psoriasis and eczema, based upon an experience of forty years at Harrogate. The prevalent English opinion, that the two diseases are closely related to gout, the writer cannot support, but believes that, like every other aberration of health, when they occur in a gouty subject they are all the more difficult to cure.

Eczema is influenced by the state of the digestion and allied condition, as hepatic disturbance, etc. Psoriasis seems independent of such influences. The etiology of both diseases is, as yet, involved in obscurity, but "what we do know is that in both there is an abnormal activity in cell-life, and that this cell-proliferation is due to fitful nerve disturbance—vasomotor possibly, central frequently."

A case of eczema is quoted in which, after the disease had been improved under baths and other hygienic measures, the patient, of his own volition, applied counter-irritation to the back of the neck, instigated thereto by reading a favorable paper on this method of treatment by Crocker; the result was a sudden and general outburst of the disease.

Several obstinate cases of both eczema and psoriasis are given, showing the favorable influence of sulphur water, as baths and internally. The patients remain in the bath from thirty minutes up to one or two hours, according to circumstances. The author has found cool baths—in proper subjects—much more efficient than hot baths, the patient remaining immersed as long as possible without feeling chilled.

In other respects, these cases are treated, both internally and externally, according to individual demands.

Parenchymatous Injections of Corrosive Sublimate in Lupus.

The cure of a case of lupus hypertrophicus of the nose is reported (*Viertelj. für Derm. und Syph.*, 1887, Heft 4) by Tansini by means of parenchymatous injections of corrosive sublimate. Swelling and œdema of the affected and neighboring parts followed, but was inconsiderable and transitory, passing

away in a few days. In the beginning of the treatment the solution was of one-half per cent. strength, later one per cent.

Eruptiform Hydradenoma.

Under the title "Hydradénomes Éruptifs," Jacquet and Darier (*Annales de Derm. et de Syph.*, 1887, p. 317) describe the following case: The patient, a healthy male aged twenty-six, presented on the breast, below the collar-bone, and extending to the umbilical region, numerous painless nodules, varying in size from a pinhead to a pea. A few were also seen upon the flexor surface of the forearm. The rest of the surface was free. The nodules were uniform in character, and but slightly elevated. They were distinct to the touch, feeling as sharply circumscribed infiltrations; isolated and in irregular groups. In consistence they were neither hard nor soft. The overlying epidermis was glossy and free from scales. The lesion showed no orifices. The skin immediately adjacent was uninvolved. The largest nodules were just beneath the collar bone, the smallest at the umbilical region. The eruption was noticed eight years previously, appearing first at the upper part of the breast. There was no perceptible growth of the individual lesions noticed since their first appearance, but they had slowly increased in numbers. There were no subjective symptoms. Potassium iodide internally, and various external applications, were without result. The histological examination (given minutely in the original article) disclosed the nature of the lesions—"adenoïde epitheliome," having their origin in the sweat glands, and differing from other adenomata of these structures in the manner (histologically) of growth and degeneration, and also in the simultaneous sclerosis of the connective tissue.

OBSTETRICS.

UNDER THE CHARGE OF

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The Induction of Labor.

Strauck, of Moscow, reports 28 cases of induced labor, in the *Archiv für Gynäkologie*, Band 31, Heft 3, as follows:

His clinical material under observation was 54,088 births in fifteen years; he found the proportion of cases in which the induction of labor was indicated 1 in 1865 cases.

Contracted pelves, with conjugatæ veræ from 1⅞ inches to 3½ inches, were the cause for inducing labor in 21 cases. Strauck emphasizes the difficulty of determining the degree of pelvic contraction present, and considers the simple procedure of pressing the head downward, through the abdominal walls, of great value as determining the possibility of its entrance into the pelvis. The induction of labor was performed 3 times for nephritis so advanced that

no other mode of treatment was possible. The habitual mortality in the children of 4 mothers was the cause for inducing labor with those patients, and the children so delivered survived.

Six methods were employed: Faradic electricity in 1 case; Braun's kolpeurynter in 2; injections of pilocarpine in 3; rupturing the membranes in 6; the vaginal douche in 20; the introduction of a bougie in 26.

The use of electricity was without result. The kolpeurynter was highly useful in checking hemorrhage and in aiding the action of a bougie. Pilocarpine, injected hypodermatically in 2 per cent. solution in full doses, produced only unpleasant general effects, and was utterly useless.

Rupturing the membranes proved a rapid means of inducing labor, when immediate parturition was necessary. Vaginal douches of 1 per cent. warm carbolic solution, injected without violence, and so directed that but little fluid entered the cervix, were employed daily in increasing frequency for six days; although successful they were inferior, as a means of treatment, to the bougie: they possess considerable danger of septic infection from careless administration.

The introduction of a bougie was found by far the best mode of inducing labor. A blunt-pointed, elastic bougie, new, Charrière No. 24, 13 inches long, was chosen, and its outer, hollow end closed. It was cleansed with soap, disinfected with 5 per cent. carbolic acid solution, and lubricated with glycerine. The bougie was introduced while the patient lay on her back, and was allowed to take any direction most feasible; it was usually impossible to ascertain in what portion of the uterus the bougie lodged. The endeavor was made to introduce the bougie so far that the external end rested against the posterior vaginal wall; if this was impossible, the bougie was fastened to a thread which passed over the groin, around the waist, and beneath the pelvis. Any position of the patient necessary was utilized, and the cervix was often steadied by forceps during the introduction of the bougie. The removal of the bougie was performed when the os uteri was fully dilated; when the liquor amnii had escaped; when hemorrhage occurred; when convulsions supervened, not yielding to ordinary treatment; often it had remained 24 hours in utero. The patient, who had been previously in bed, then rose, emptied the bladder and rectum, was given a sitz bath, and after she had rested several hours and had received disinfectant vaginal injections, one, two, or three bougies were introduced.

Strauck introduced bougies in 26 cases, 20 times after the treatment by douches had been begun. He believes that the preliminary use of douches is a hindrance, lessening uterine irritability, and he advises the direct use of the bougie. In 10 cases birth was spontaneous after the bougie had been retained on an average 25 hours. In 13 cases further operations were needed to terminate labor; in 3 cases the bougies failed.

In all, labor was induced 28 times, in 23 women; 21 of the children lived, 8 died. Of the 21 living children, 10 died in the hospital, 11 were discharged healthy. A comparison with the results of the modern Cæsarean section shows that induced labor presents a maternal mortality of nil; Cæsarean section of 11.8 per cent. Induced labor has an infant mortality of 55 per cent., Cæsarean section of 8 per cent. Strauck concludes that the infant mortality is so great in induced labor that it should give place to Cæsarean

section, since there is every reason to believe that Cæsarean section will lower its mortality steadily as operators become more practised.

The Infectious Character and Presence of Bacteria in the Lochia.

Döderlein, of Leipzig, contributes to the *Archiv für Gynäkologie*, Band 31, Heft 3, an article under the above title, in which he reviews the previous investigations regarding the presence of bacteria in the lochia, and adds his recent studies. His conclusions are as follows: Under normal conditions the uterine lochia contain no bacteria; on the contrary, under the same circumstances, the lochia in the vagina contain countless germs of various kinds. The uterine lochia may be introduced into the animal body in any manner chosen, without producing reaction. The vaginal lochia, on the contrary, produce infection and abscesses when introduced into the bodies of animals.

The presence of germs of any kind in the puerperal uterus produces, as a rule, rise of temperature. After the fall of this elevated temperature the uterine lochia are free from germs. The removal of these germs is effected by the multiplication and secretion of pus cells. Before the temperature rises germs are present in the uterus; there must be, then, a period of incubation for these germs. Again, circumstances may arise which develop suddenly the latent injurious qualities of germs. Lochia taken from the uterus of a patient who has fever produce in animals symptoms of infection; it is only when such lochia contain but a few isolated germs, producing very slight symptoms, that animals can be inoculated with but trifling results. The vagina, although no vaginal examination has been made, may contain pathogenic germs (auto-infection). The uterine lochia of puerperal women suffering from puerperal sepsis in every form contain germs, and without exception streptococcus pyogenes is present. The development of germs *in utero* may result spontaneously without infection from examinations or operations.

Döderlein's conclusions agree with those of Kaltenbach, and both urge upon us, with great force, the disinfection of the vagina before and during labor.

Spontaneous, Perforating Rupture of the Vagina, with Partial Escape of the Child into the Abdomen.

Dührssen, of Berlin, reports the case of a multipara, who was brought to the care of the physician in a somewhat tedious labor. Examination led to the belief that twins were present, the head of one and the feet of the other presenting. After being in labor several hours the patient complained of sudden and great pain in the abdomen, and manifested symptoms of collapse. Examination revealed the abdomen occupied as far as the navel by an ovoid body, which proved to be the child; on the right side of this body was the firmly contracted uterus; to the left was a doughy mass, evidently blood. Vaginal examination found the feet in the vagina, the head was above the entrance to the pelvis, the cord was also presenting.

A large child was readily delivered by traction upon the feet; a mass of blood and the placenta followed. As alarming hemorrhage persisted, the accoucheur introduced iodoform gauze in strips, through an aperture at the junction of the vagina and cervix which communicated with the abdominal

cavity, and in which the intestines were felt. Compression of the abdominal aorta and the free use of stimulants were promptly practised, but the patient's condition was so alarming that salines were injected into the veins of the arm, with good results.

The patient reacted only moderately well, and her condition was considered hopeless. Twenty-four hours afterward the gauze was removed, and no hemorrhage followed; the abdomen was flaccid and non-sensitive.

The subsequent treatment was vaginal injections of $\frac{5}{10}$ per cent. salicylic acid, injected very gently, compression by bandages, an ice-bag on the abdomen, opium, ice, and stimulants internally.

Although the patient's temperature rose to 103.5° F., yet her pulse remained normal. She recovered in about six weeks. When discharged from the hospital examination revealed the uterus atrophic, in anteflexion, and drawn to the left by a band of fibrous tissue in the left broad ligament. The cervix uteri was so small as to be hardly recognizable; the os uteri was extremely small. The vagina was triangular in shape, narrowed above, and in the left parametrium the remains of the laceration were felt, radiating inferiorly.

In commenting upon the case, Dührssen recalls Schröder's observation that the early uterine contractions exercise considerable force, tending to tear the broad ligaments from their uterine attachments. Rupture in this locality gives no warning of its approach, differing in this respect from rupture in the lower segment of the uterus. In addition, a rachitic pelvis was present in this case, which increased the resistance to the child's head. The profuse hemorrhage which occurred came from the vessels of the ruptured broad ligament. The non-septic condition of the hæmatomia was owing to the iodoform gauze tampon, which has proved so valuable an agent. In the reported cases of rupture of the vagina during labor, the cervix uteri has always atrophied when recovery ensued, the present case conforming to others.

The peculiar presentation first encountered (the head and feet) was, in part, owing to the constriction of the abdomen exercised by a tight girdle which the patient was accustomed to wear.

The occurrence of rupture after but a few hours' labor pains, and in the absence of all efforts at delivery, is remarkable.—*Berliner klinische Wochenschrift*, No. 1, 1888.

Intrauterine Douches of Hot Antiseptic Fluid, as Hæmostatics.

Albertin, in the *Archives de Tocologie*, closing number, 1887, reviews the literature of the subject and adds his results from 87 cases to whom intrauterine injections of hot antiseptic fluids, at a temperature of 112° to 115° F., were given, to check post-partum hemorrhage. About a gallon of fluid was generally used, allowed to flow from a receptacle raised but slightly above the patient's bed. In 16 cases the douche was given independently of ergotin, and its effect was noted, not being obscured by that of the drug. In the greater number of cases the douche was accompanied by the hypodermatic injection of ergotin. In hemorrhage from the cervix uteri a hot solution of a mercurial, very dilute, was injected, with good results. The writer's results were uniformly good, and without accident.

The Treatment of Post-partum Hemorrhage.

Dr. Temple, of Toronto, in a case of post-partum hemorrhage, recently treated, injected hot water into the uterus several times without avail. He emptied the uterus of its clots, and exercised manual compression, but unsuccessfully. In the emergency he injected a tumblerful of undiluted brandy within the uterus; prompt and lasting contraction ensued, and cessation of the hemorrhage.—*Canada Lancet*, January 1, 1888.

Ante-partum Peritonitis.

Mr. Gow, of St. Bartholomew's Hospital, reports, in the *Edinburgh Medical Journal* for January, 1888, the following interesting case:

The patient was a stout, well-made woman, aged thirty-two, who had had eight children previously, the labors in all these cases being natural. She was seen for the first time on the morning of May 9th. She complained of frequent, sharp abdominal pains, not resembling labor pains in character. Her lips and cheeks were livid, and beads of sweat stood on her brow. Her tongue was slightly moist. There was frequent retching. The hands and feet were cold and clammy, and the pulse was barely perceptible at the wrist and could not be counted. The respirations were rapid, being about 40 to the minute. She was quite conscious, and complained of great pain on turning on to her left side. The abdomen was distended, and the fœtus could be plainly felt, apparently within the uterine cavity.

Per vaginam: the cervix was soft, the os being dilated to about the size of a five-shilling piece. The membranes were unruptured. The head was felt to be presenting. As she complained of constant desire to pass water with inability to do so, a catheter was passed, and about one and a half ounces of urine drawn off.

The history given by the patient was, that one month previously her right leg slipped through a hole in the floor, nearly as far as the groin, owing to some rotten boards giving way. Since then, she says, she has never felt well. She had reached nearly the full period of gestation, and was expecting to be confined every day. She remained in fairly good health until the evening of May 8th. At 6 P. M. of that evening she was seized with sudden abdominal pain, and vomited. She was visited by one of the students, who found her complaining of abdominal pain and distention. She was belching up wind, but otherwise did not seem seriously ill. The pulse-rate was said to be then about 90. She was ordered some mild carminative.

Seeing the desperate state of the patient, Mr. Gow decided to perform version, and remove the child as rapidly as possible. Before commencing the operation, the patient's abdomen was rapidly auscultated, but the fœtal heart could not be found. The patient was placed on her back, and version commenced. To subdue the resistance of her abdominal muscles, a few whiffs of chloroform were administered tentatively; but as it made the patient more cyanotic than before, it was discontinued. Just as the knee of the child had been reached, the patient ceased to breathe. In the hope of saving the child, an incision was made into the abdomen.

On opening the peritoneal cavity a large quantity of semi-opaque peritoneal

fluid, containing flakes of lymph, escaped. There was no blood in the peritoneal cavity. The uterus was seen covered with flaky lymph. An incision was made into it, and the child extracted about five minutes after the death of the mother. The child's heart was not beating, and all attempts at artificial respiration failed. There was only slight hemorrhage on cutting into the uterus. There was no blood in the uterine cavity. No evidence of rupture of the uterus or other organ was discovered. The inflammation of the peritoneum was most marked over the uterus and in its neighborhood.

No cause for the peritonitis could be found, but unfortunately no complete examination of the body was obtainable. Death took place fourteen hours after the onset of the symptoms.

Mr. Gow adds a case reported by Sir James Simpson, and two reported by Matthews Duncan, in which, as in his own case, the etiology of the condition was very obscure.

A Tumor of the Umbilical Cord.

Budin, in *Le Progrès Médical* of December 31, 1887, reports the case of a rare tumor of the umbilical cord occurring in a multipara whose three previous pregnancies had been normal. During the pregnancy in question the patient had observed, from the fourth month, a sensation of great weight in the lower abdomen, with sharp pain in the left side which extended into the limb, making walking impossible. In the latter months of pregnancy she experienced a severe mental shock. The labor was normal, and a healthy, well-formed female child was born, and lived.

The tumor was about eight inches from the umbilicus, and as large as a man's fist. Its border was attached to the cord; it was of a light greenish-yellow hue, and contained three cystic cavities. Dissection revealed dermoid and mucoid elements. Budin considered it a complex tumor of embryonal type. [Such a tumor would evidently belong to the class designated by Ziegler teratome, congenital tumors frequently dermoid, and often attached to the spinal column of the fœtus.—Ed.]

The Treatment of Puerperal Sepsis by Salicylate of Sodium and Alcoholics.

Von Jaksch, now of Graz, in the *Wiener medicinische Presse*, No. 1, 1888, in a comprehensive article upon the antipyretics most in use, writes in most positive terms of the value of salicylate of sodium in conjunction with alcoholics, in puerperal sepsis. His opinions are based upon fifty cases, treated in the wards of Nothnagel, in Vienna, under von Jaksch's personal supervision.

He began the administration of the drug by giving seven and a half grains of salicylate of sodium hourly until the temperature fell to normal, a result generally obtained in fifteen to twenty hours. Symptoms of intoxication were rarely observed; when they appeared in force the dose was reduced one-half. He considers symptoms of intoxication no reason for abandoning the treatment, and after four or five hours he was generally able to resume the original doses.

In conjunction with this treatment he employs alcoholics in full doses,

cognac, sherry, and any form of good wine being freely given, with the best possible diet. In the event of heart failure becoming imminent, hypodermatic injections of camphorated oil and other cardiac stimulants were given. If five or six doses of seven and a half grains of sodium salicylate produce no effect, von Jaksch does not hesitate to give fifteen grains hourly, and considers the administration of four and a half to five drachms of sodium salicylate in twenty-four hours fully indicated in severe conditions. The only ill effect he has seen follow this treatment has been mild delirium.

Von Jaksch is not prepared to assign to sodium salicylate a specific action upon puerperal sepsis, but he desires to call the attention of those who treat large numbers of puerperal women to its use, and he advises in cases where a moderate rise of temperature occurs, post partum, that the drug be given promptly, sixty to seventy-five grains daily, and if severer symptoms follow, the full doses should be given. He would administer the remedy, from forty-five to sixty grains daily, to pregnant women, just before labor, when the surroundings of the patients are very unfavorable and non-hygienic.

Ophthalmia Neonatorum.

In the *Zeitschrift für Geburtshülfe und Gynäkologie*, Band 14, Heft 1, Nebel describes the studies of Kaltenbach, in the clinic at Giessen, upon this subject. For the first eighteen months after taking charge of the clinic Kaltenbach employed Credé's prophylactic treatment of nitrate of silver in 234 cases, with 2 cases of purulent ophthalmia, and 2 of mild catarrhal conjunctivitis; resulting morbidity 0.85 per cent. In 2 of these cases the mothers suffered from endometritis; in 2 cases from parametritis. Nitrate of silver was then abandoned, and for six months careful disinfection of the children's eyes with corrosive sublimate solution, 1 to 5000 or 3000, was employed. In 85 cases blennorrhœa resulted in 1, and simple benignant purulent catarrh in 2. The present method of treatment was then instituted, which is as follows: Each patient is given a full bath on admission, at which the external genitals are thoroughly cleansed with soap. Before and after each vaginal examination a vaginal injection of corrosive sublimate, 1 to 3000, is made. The slightest suspicion of gonorrhœa necessitates a thorough abortive treatment. When labor begins, the external genitals are again cleansed, and after examination vaginal douches are given, until six or eight quarts of sublimate solution, 1 to 3000, are used. As soon as the face passes the perineum the eyes are cleansed with cotton dipped in distilled water.

Nurses are carefully taught the danger of contagion by the maternal discharges, and instructed to avoid it. The most strenuous precautions to obtain cleanliness among the nurses are observed. Children are not allowed to sleep with the mother; their eyes are cleansed daily with distilled water only. The results of this treatment in 330 cases, which were treated in the last two years, were 2 cases of mild conjunctivitis, and not a single case of virulent ophthalmia. In one of these cases the mother had endometritis; in the other she came late into the hospital, after labor had begun, and thorough disinfection was impossible. Nebel regards Credé's method as objectionable, because of the irritant effects of the nitrate of silver.

Auvard, in the *Gazette Hebdomadaire*, No. 42, 1887, reviews the various

methods of treatment of this affection employed by the French, and concludes that the following is the best routine: In mild cases of ophthalmia the eyes should be douched every two or three hours with a solution of boric acid, 4 to 100; it is rarely necessary to resort to caustics.

The preventive treatment of severe ophthalmia consists in removing the child from all sources of danger, and in thoroughly disinfecting the mother. One drop of nitrate of silver solution, 1 to 50, is dropped into the eye; this may be repeated if a new infection arises. The curative treatment of severe ophthalmia consists in two applications daily with silver solution, 1 to 20, or 1 to 50, as the case demands, with douches of boric acid, 4 to 100, every two or three hours (after each nursing). Compresses wet in hot boric acid solution (at 120° F.) should be used between the douches and cauterizations.

Fœtal Infection with Anthrax.

Ahlfeld and Marchand, in the *Centralblatt für Bacteriologie und Parasitenkunde*, No. 14, 1887, report the case of a woman who presented no symptoms of disease except a moderate pallor and tympanitic distention of the abdomen. She gave birth, after a normal labor, to her second child; eight hours after labor the patient died in collapse, for which no cause was evident. Post-mortem examination revealed anthrax as the cause of death. The child perished four days after birth, also from anthrax. The mother had contracted the disease in sorting horsehair, and the child was infected through the placental circulation, probably through rupture of the villi of the chorion during the separation of the placenta.

The case furnishes an interesting example of the direct transmission of infection from mother to child, and was clearly demonstrable from the nature of the infective medium.

Rupture of the Uterus; Laparotomy; Recovery.

In the *Deutsche medicinische Wochenschrift*, No. 2, 1888, Koettnitz describes the case of a rachitic woman who had been pregnant three times, an abortion and two stillbirths resulting. In the fourth pregnancy she came into the clinic at Halle, when five months advanced, when examination showed a rachitic pelvis. It was proposed to induce labor at the seventh month. Before this could be done, severe labor pains came on; the os uteri failed to dilate, but was closed by cicatricial tissue, caused by difficult labors previously.

When summoned, the physician found the patient in collapse, with well-marked symptoms of rupture of the uterus; examination, externally and per vaginam, confirmed the diagnosis. Laparotomy was at once performed. After the extraction of the child, the uterus contracted so firmly and rapidly that the uterine wound was reopened with great difficulty for the removal of the placenta and membranes.

The cervix uteri was so occluded by cicatrices that force was used in opening with the finger a passage through the cervix for the exit of the lochia. A circular rupture of the uterus was found. The abdominal wound was closed as rapidly as possible with silk; a drainage tube was inserted. In addition to antiseptic dressings an Esmarch's bandage was applied over

the abdomen, to secure equable and firm pressure upon its contents. The patient made a good recovery in five weeks' time. A rise of temperature and profuse discharge were treated by substituting for the tube drainage by iodoform gauze. The pelvis contained considerable exudate, which was in process of absorption when the patient was discharged.

The occurrence of rupture of the uterus at seven months, induced by occlusion of the cervix by cicatricial tissue from former difficult labors, with the presence of metritic and perimetritic exudate, are interesting features in the case dependent primarily on contracted rachitic pelvis.

Cæsarean Section.

Hofmeier, in the *Zeitschrift für Geburtshülfe und Gynäkologie*, Band 14, Heft 1, reports three successful cases of Cæsarean section, two performed by the late Professor Schröder, and one performed by himself. The first of Schröder's cases was contracted pelvis, with a diagonal conjugate of about 3 inches (7.5 centimetres). The operation was performed after Sänger's method; the uterine muscle was not resected, but sutured with silk; the peritoneum with catgut. When the elastic ligature was loosened bleeding occurred from one extremity of the incision in the uterus, which was checked by additional deep stitches. The uterus contracted poorly after the operation, and it was necessary to apply a firm compress, after employing uterine massage. The patient's recovery was complete twenty-one days after the operation. When discharged, her uterus was somewhat enlarged, and adherent to the abdominal wall.

Schröder's second case was that of a woman, aged forty-five, in the right side of whose cervix uteri a myoma was present. Schröder had produced abortion in the previous pregnancy, and had been obliged to curette the uterus to free it from the placenta. In the early weeks of the next pregnancy an attempt was made by her physician to produce abortion, but unsuccessfully.

She came again to Schröder's clinic when seven months pregnant, and Cæsarean section was determined upon. Two hours after labor had fairly begun, Porro's operation was performed, the uterine arteries being isolated and tied. The myoma was found to be unusually hard and very adherent with the peritoneum; the uterine stump was closed with catgut and covered with peritoneum. The operation lasted one and three-quarters hours. The dressing was iodoform gauze. The abdominal incision healed by first intention. The patient was discharged twenty-six days after operation. The cervix was well contracted, drawn somewhat to the left; on its right a firm, ill-defined tumor.

Hofmeier's case was a rachitic pelvis, with a diagonal conjugate of 9.5 centimetres (3.7 inches), and a previous history of four births fatal to the fœtus. Operation was performed one and a half hours after labor was well begun. Sänger's method was followed. Uterine atony, with hemorrhage, required compression, massage, and ergotin hypodermatically. Anæmia and transient abdominal meteorism were the features of recovery. When discharged, the uterus was adherent to the abdominal wall; examination two months later found it freely movable and apparently normal.

The children in these cases were asphyxiated when delivered, but were

resuscitated, Schultze's method of swinging the child by the shoulders proving most efficient.

Schröder had previously performed Porro's operation for myoma complicating pregnancy, with success.

Hofmeier considers the essentials of success in these operations to be:

1. Scrupulous antisepsis.
2. Early operation.
3. Sufficient uterine sutures.

GYNECOLOGY.

UNDER THE CHARGE OF

HENRY C. COE, M.D., M.R.C.S.,
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Anatomy of Healthy and Diseased Ovaries.

Nagel (*Archiv für Gynäkologie*, Bd. 31, Hft. 3) endeavors to reconcile the clinical with the anatomical diagnosis of ovarian disease, by presenting the results of his examinations of slightly affected organs which were removed by laparotomy.

Referring to the common expression, "cystic degeneration," he says positively that, from his investigations, he is led to infer that there is no diseased condition which can be called slight cystic degeneration. In this he agrees with the opinion expressed by Virchow, in 1848, that it is unscientific to say that the number of normal ovisacs is increased to the number of several thousands as a result of disease. It is undoubtedly difficult to define the exact boundary between the normal and pathological. Comparing Waldeyer's classical description of the normal Graafian vesicle with the appearances seen in enlarged ovisacs, it must be evident that the latter condition is purely physiological and cannot be regarded as true cyst-formation. Such enlarged vesicles are very common in fœtal ovaries. A mere increase in the number of ovisacs is no indication of disease of the stroma; on the contrary, such disease, if it reaches a certain degree of severity, results in actual destruction of the vesicles.

With regard to the condition known as *hydrops folliculi*, Nagel believes that size alone is no criterion of the presence or absence of dropsy. He agrees with Sinéty and Melassez, that hydrops really results in destruction of the vesicle, and never leads to the formation of a cyst; a dropsical Graafian body never attains a size larger than that which it might have reached if it had not been diseased.

The author thinks that cysts of the corpus luteum are more frequent than is commonly supposed; indeed, a corpus luteum is more likely to develop into a true cyst than is an unruptured ovisac. It is erroneous, he adds, to say that the corpus luteum is the result of contraction; it is essentially the

product of a hypertrophic process, which leads to the new formation of ovarian tissue.

The stromal changes observed in the condition known as "interstitial oöphoritis" are, says Nagel, "the substratum of chronic oöphoritis." There is no actual inflammatory process; he has never been able to find any evidences of round-cell infiltration in the specimens examined by him. The hypertrophy is confined mostly to the stroma in the immediate neighborhood of the hilum, which is transformed into firm connective tissue. Smooth muscle-fibres he has never seen. The explanation of cyst-formation in connection with chronic oöphoritis is this: as the cirrhotic ovary contracts and furrows are formed on its surface, remains of the superficial "germ-epithelium" are included in these furrows, and by the isolation of these cell-offshoots cysts may be formed.

The author's deductions are as follows:

1. In every instance the interstitial tissue of the ovary is first affected by disease.

2. The ovisacs retain their normal appearance for a long time, and contain healthy ova.

3. After the stromal changes have attained a certain grade, the vesicles undergo atrophy.

Peri-oöphoritis, the writer adds, seems to be the most frequent cause of ovarian disease, the periphery being first affected and subsequently the deeper parts. In only a single instance did he attribute the pathological changes to a preceding acute interstitial oöphoritis; the result of the acute process is a general hypertrophy and induration of the gland, so that it may reach the size of a goose-egg.

In concluding he seeks to show that in the case of the patients whose ovaries he examined after their removal, the diagnosis of disease, based upon the clinical symptoms and the result of the vaginal examinations, was fully confirmed by microscopical examinations of the removed organs.

[The subject of this paper possesses such practical interest for laparotomists that we have ventured to make a somewhat lengthy abstract. We must confess that after a careful study of the article we are disappointed at the meagre addition to our existing knowledge. What surgeons desire of pathologists is not so much minute descriptions of the various pathological appearances to be seen in every section of a diseased ovary, as a satisfactory test by which to determine what degree of morbid change in a given organ is sufficient to impair its functions, and hence to justify removal, on the ground of existing disease. Every tyro with the microscope knows that it is rare to meet with an ovary that is perfectly normal anatomically. Although the writer has made a careful and painstaking study of his specimens, and has presented his results in a clear and interesting manner, we fail to see that he has solved the problem which he stated at the outset.—ED.]

PARALYSIS OF THE UTERUS FROM CURETTING.

GEYL (*Ibid.*), referring to observations made by Doléris, states that while removing two tumors from the bladder he noticed that a solution of boracic acid, which he had injected into the organ, did not return. He feared rupture

of the bladder, but, on introducing his finger, could find no lesion; the organ seemed to be in a state of complete relaxation. As soon as the anæsthetic was discontinued, the fluid was forced out in a stream. The phenomenon could only be explained by supposing a paralysis of the vesical muscle, associated with a lowering of the normal abdominal pressure. This is similar to the condition sometimes observed in the uterus after the use of the curette. The organ becomes so flabby and relaxed that when fluid is injected into its cavity, neither the uterine muscle nor the abdominal pressure is sufficient to force it out.

Case of Pseudomyxoma of the Peritoneum.

Geyl (*Ibid.*) also reports a case of laparotomy in a patient seventy-six years of age, who had suffered from dyspnœa, ascites, and œdema of the feet and ankles, without pain or fever. Fluctuation could be obtained on palpating the abdomen, but an attempt to remove a specimen of fluid with a hypodermatic needle was unsuccessful. The history and symptoms pointed to ovarian cyst. On opening the abdomen a quantity of ascitic fluid escaped. A colloid cyst, springing from the left side, was removed. On examination, colloid masses were felt on the under surface of the liver, over the diaphragm, stomach, omentum, and intestines, beside covering the pelvic organs. It was impossible to remove the cyst entirely. The patient recovered from the operation, but subsequently wasted away, dying of exhaustion. An autopsy could not be obtained.

Laceration of the Cervix and its Relation to Uterine Disease.

Noeggerath (*Ibid.*) read a paper on this subject, in September, 1887, before the Society of German Naturalists and Physicians. Although the operation for the repair of cervical laceration is performed far less frequently in Germany than in America, the reader still thought that even in the former country it is sometimes done unnecessarily. He opposed the operation unhesitatingly. Out of 100 cases of uterine disease which he had observed, in 50 the cervix had never been lacerated. There was no difference as regarded the frequency of displacements in the two cases. Twice as many women without lacerated cervices were sterile after the birth of their first child; and out of 20 cases of abortion, 12 occurred in women without lacerations. Both erosion and eversion were noted more frequently in nulliparous women. With regard to ectropion, Noeggerath affirmed that it was due simply to a swelling of the lips and might occur in an intact cervix. Eversion in cases of laceration was produced by introducing Sims's speculum, which put the anterior and posterior vaginal walls on the stretch, and thus caused rolling out of the lips. The author summarized as follows:

1. Women conceive more readily when the cervix is lacerated than when it is intact, and abort less frequently.

2. Displacements of the uterus are not produced by laceration of the cervix.

3. Hypertrophy of the uterus is an accompaniment, not a result, of laceration.

4. Laceration of the cervix *per se* has no influence in producing uterine disease.

5. Erosions and ulcerations occur with equal frequency in the torn and in the intact cervix.

6. Ectropion is not the immediate result of laceration.

7. Restoration of the original shape of the *portio vaginalis* can have no influence upon the existing condition of the uterus.

In closing the discussion, the author denied that he had ever observed under the microscope any pathological change in the tissue removed from a lacerated cervix.

[The reader will share in the feeling of surprise expressed by Sänger on listening to this paper by an American gynecologist. No further comment is needed than the mention of the fact that his German auditors were almost unanimous in their disapproval of his extreme views and in their commendation of Emmet's operation.—ED.]

THE OPERATIVE TREATMENT OF RETROFLEXION OF THE UTERUS.

SÄNGER (First part of paper in *Centralblatt für Gynäkologie*, January 14, 1888) makes a valuable contribution on this subject, in which he presents a brief, but comprehensive, historical review. He estimates that in at least twenty per cent. of cases of retro-displacement it is impossible to keep the uterus in its normal position after replacing it. Why, he asks, can we not, in those cases in which the organ is only retained in position when a pessary is introduced perform some operation which will render the pessary unnecessary? The essentials demanded of such an operation must be safety and the restoration of a condition which corresponds as closely as possible to the natural one. This desideratum has not yet been attained.

He divides the various operative procedures into the indirect and the direct. Among the former he includes: *a.* Repair of the lacerated perineum, with correction of the prolapse of the vagina and uterus; *b.* Repair of the lacerated cervix alone; *c.* Amputation of the *portio vaginalis; d.* Removal by laparotomy of any neoplasm which may directly cause the displacement; *e.* Removal of the uterine appendages.

As an illustration of the latter method, he cites a case in which he had removed the ovaries in order to relieve various hystero-neuroses, associated with menorrhagia. The uterus was retroflexed. Some months after the operation the hemorrhage recurred. On examination, the uterus was found to be still retroflexed and no smaller than before. The left stump appeared to be thickened and tender on pressure. At the earnest request of the patient laparotomy was performed a second time, and the affected stump was freed from the adhesions which it had contracted. The adherent uterus was detached, anteverted, and retained in position by means of a Hodge pessary. Although the organ soon returned to its former malposition, it decreased in size, the hemorrhage ceased, and the patient was entirely relieved. It was evident from this that persistent hemorrhage from a retro-displaced uterus after castration was to be ascribed directly to the retroflexion.

Among the indirect operative measures may be classed Schultze's method of separating periuterine adhesions by bimanual manipulation (see Report on Gynecology in the January number of the Journal).

Of the direct operations, he mentions: *a.* Von Rabenau's method of resect-

ing a portion of the vaginal wall, in order that traction on the cervix may result from the resulting cicatricial contraction; *b.* Alexander's operation, which in itself is not enough, as it does not attack the cause of the displacement, although, if combined with shortening of the antagonizing utero-sacral ligaments, it may be made more efficient; *c.* The treatment of retroflexion by laparotomy and ventral fixation of the organ.

The latter operation was first attempted by Kœberlé in 1877. After removing the ovaries, he sewed the stumps in the abdominal wound. P. Müller, a year later, attached the fundus to the abdominal wall. Schultze, writing on this subject in 1881, said that the performance of laparotomy for the express purpose of curing retroflexion was only justifiable after attempts to break up the adhesions by bimanual pressure had proved unsuccessful, and that even then it was too dangerous a procedure to be advised. Olshausen renewed the discussion of the subject in 1885, and reported two cases, in one of which he attached the stumps (after oöphorectomy) to the lateral walls of the pelvis, while in the other the sutures were introduced through the cornua of the uterus, at the base of the round ligaments, and were then carried as deeply as possible through the muscles of the abdominal wall. In this way a greater range of motion was obtained for the uterus than was the case when the fundus was attached. Tait reported two cases in 1880, and Hennig another in 1881, beside others by Bardeleben and Czerny, and two by Sänger. Soon after Olshausen's paper appeared, Dr. Howard A. Kelly, of Philadelphia, performed an operation, which he subsequently reported under the name "hysterorrhaphy," a word to which Sänger objects, since from its etymology it would imply a plastic operation upon the uterus itself; "gastro-hysterosynaphia," or "ventro-fixatio uteri," are suggested as being more appropriate terms.

The following variations in *technique* have been practised: 1. Removal of the appendages, and suture of both stumps in the abdominal wound. 2. Ovariotomy, and suture of a single stump in the wound. 3. Removal of the appendages and attachment of the fundus uteri to the abdominal wall. 4. Attachment of one stump to the abdominal wall. 5. Attachment of both stumps as in 4. 6. Suture of the cornua uteri to the abdominal wall, without removal of the appendages.

The author reports seven operations performed after different methods in all of which the uterus was permanently fixed in the normal position. It is frequently stated, he concludes, that after the removal of the appendages the retro-displaced uterus diminishes in size, and gives rise to no further symptoms, but this retrograde process is often indefinitely delayed, while pain and hemorrhage persist.

[This concluding statement is one of great practical importance, which is constantly being verified in the after-history of cases of laparotomy. We venture to go a step beyond Sänger, and to assert that in our experience no operation upon the uterus, performed for the relief of pain, hemorrhage, or hypertrophy of the organ, is likely to be successful so long as the uterus remains fixed in a position of retroflexion. It is evident that a general application of this principle would limit to a considerable extent operative interference in pelvic disorders.

With regard to the operative treatment of retro-displacement, we must not

forget that twenty years ago Sims suggested the procedure of attaching the fundus uteri to the abdominal wall, by passing a wire suture through the wall from without, the abdomen not being opened. This idea was never carried out. To the methods of securing the uterus after replacement should be added that practised by Polk, of New York, who, after performing laparotomy and separating the adherent organ, retains it in its normal position by shortening the round ligaments in the usual manner.—ED.]

THE OPERATIVE TREATMENT OF RETROFLEXION WITH FIXATION.

KLOTZ (*Ibid.*) reported before the Dresden Gynecological Society in October, 1887, seventeen successful cases of retroflexion, which he had treated by opening the abdominal cavity, separating the retro-uterine adhesions (and also those around the tubes and ovaries), and securing the uterus in a position of anteversion by attaching one tube, or the stump left after removing the appendages, to the abdominal wound. He then passed a glass drainage-tube, about one-half inch in diameter, to the bottom of Douglas's pouch, and left it in situ for three or four weeks. The advantages claimed for the tube were:

1. The cavity could be washed out daily, so that blood or exudation could not collect in it.

2. The uterus was supported in its new position during the entire process of healing, so that no strain was thrown upon the stump.

3. A layer of organized lymph formed around the drainage tube, which layer subsequently became a firm cord of connective tissue, that "thickened the posterior wall of the uterus, and also formed a second point of fixation to the abdominal wall."

No bad effects followed the introduction of the tube, which, after the fourth day, was daily turned about on its long axis, in order that the lateral openings might not become plugged; shorter tubes were later substituted for the original one. Sepsis was absent in every instance, in spite of the prolonged use of the tube. In three cases only was it necessary subsequently to correct the position of the uterus with a pessary, by reason of the formation of fresh retro-uterine adhesions, which tended to draw the organ backward. The uterus remained in a position of anteversion and was freely movable; the operation was free from pain, and there was no disturbance of the functions of the bladder. Hernia had never followed the operation, in spite of the use of the tube, which was the more remarkable as Klotz had seen a hernial protrusion caused by attaching the fundus uteri to the abdominal wall.

[The writer appears to regard his method as a "new" one. If we mistake not, Polk described it in a paper entitled, "Laparotomy for Adherent Retroflexed or Retroverted Uterus," read before the New York Obstetrical Society, April 19, 1887, at which time he reported five cases in which he had employed the drainage tube in the manner described. In the discussion that followed, H. Marion Sims reported a case in which he had performed the same operation a year or two before.

We confess that the prolonged use of the tube seems to us to be a serious objection. Nearly all laparotomists now regard it in the light of a necessary

evil, and consider that its use adds greatly to the risks of the operation. We cannot see what necessity there could be for washing out the abdominal cavity three or four weeks after the operation, unless there was actual suppuration.

In describing the formation of adhesions around the tube, the advocate of this method has made no mention of intestinal adhesions resulting from its use. We have noted these on several occasions, and have found that they constituted a source of permanent distress to the patient. He is certainly exceedingly fortunate in never having had a case of ventral hernia, since the use of large-sized drainage-tubes is universally regarded as the most common cause of this complication. The absence of vesical irritation after forcible reposition and fixation of the uterus is remarkable; in two cases in which we attached the uterus to the abdominal wall, this symptom has been extremely annoying, persisting in one instance after the lapse of more than a year.—ED.]

EXTRA-PERITONEAL EXPLORATIVE INCISION.

BARDENHEUER (*Deutsche medicinische Wochenschrift*, No. 13, 1887) claims that this method of incision is absolutely safe, while it affords a greater certainty of a correct diagnosis because the majority of abdominal tumors are either extra-peritoneal, or are attached to the peritoneum. Moreover, it may be possible to remove, partially or completely, the tumor extra-peritoneally.

By the intra-peritoneal method it sometimes happens that the origin and character of a tumor cannot be determined until the close of the operation.

The technique is described briefly. It consists simply in exposing the peritoneum by a free incision and investigating the position of the tumor; if necessary, the membrane may be punctured, or even incised, in order to allow the introduction of the finger. The peritoneum may be separated over a considerable area without danger. The writer describes three incisions—the "Renalschnitt," or lumbar, the "Symphysischnitt," or lower abdominal, and the "Thorakalschnitt," or upper abdominal; any two of these may be united with advantage. There is no danger of subsequent hernia. The lumbar incision is the ordinary one adopted in kidney section; to it may be added the "Costalschnitt," an incision extending backward to the vertebral column, and the "Iliacschnitt," which runs posteriorly along the crest of the ilium. The two latter may also be prolonged anteriorly if the tumor is unusually large. The suprapubic incision is made transversely, just above the symphysis, and may be extended outward along Poupart's ligament. The upper abdominal incision follows the lower border of the ribs. Through these three openings the entire abdominal cavity may be thoroughly explored. The author expects to publish a more extended account of his method in the form of a monograph.

[Although this subject is of more interest to the general surgeon, we have ventured to introduce it here in order to express our disapproval of some of the writer's statements. It is certainly contrary to our observation that the peritoneum can be extensively stripped from the superjacent fascia without danger, and that such abdominal incisions as he describes are not followed by hernial protrusions. It is not stated in what proportion of cases it becomes necessary, in order to establish the diagnosis, to incise the peritoneum, thus converting the operation into an intra-peritoneal exploration.—ED.]